LEARNING THROUGH DESIGN: SUBJECTIVITY AND MEANING IN YOUNG PEOPLE'S COMPUTER GAME PRODUCTION WORK

Caroline Pelletier
Institute of Education, University of London

Thesis submitted in fulfilment of the requirements of the degree of Doctor of Philosophy

I declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own

Caroline Pelletier, 23 July 07

Word count: 79,975

Abstract

This thesis is concerned with identifying what young people learn when they make their own computer games, with learning defined as the production of subjectivity. It theorises learning and meaning-making as identical processes, and treats semiotic analyses of computer games as indicators of social relations in the sites of production. Computer game design is conceptualised as a resource with which young people position themselves within, and re-shape, such relations.

I draw on two bodies of theory. Gunther Kress' social semiotics is used to theorise learning as meaning-making, and to conceptualise computer games as multimodal, semiotic objects. Judith Butler's social theory allows me to treat descriptions of semiotic objects as indicators of the performative production of subjectivity. These two theoretical frameworks are aligned methodologically with a Foucaultian approach to discourse analysis.

The analysis chapters are organised to focus on the significance of different elements in the production of subjectivity. I compare principles of design in a classroom, an after-school club and young people's homes to highlight the significance of institutional context. I examine the different ways in which young people signify gender in talk, drawings and game design, to clarify the semiotic function of materiality. Processes of social affiliation and differentiation are described in one after-school club, to focus on the dynamics of one context.

The thesis engages with research on digital games and learning, and makes a case for re-framing theoretically debates about the educational value of games. It is also positioned to contribute to the literature on subjectivity and new media, including educational technology. The definition of learning it puts forward makes a case for understanding learning in terms of situated social relations.

CONTENTS

ACKNOWLEDGEMENTS

I would like to thank all the colleagues and friends who have provided support and inspiration during my work on this thesis, helping me to develop my ideas and clarify my thinking. In particular, I would like to thank my supervisor, Gunther Kress; Carey Jewitt and Martin Oliver for their guidance and comments throughout but especially at the upgrade; colleagues on the Making Games project, including David Buckingham and Andrew Burn; Jeff Bezemer for his detailed review; and Diane Carr, Deborah Chinn, Claudia Lapping, Jenny Parkes, and Natasha Whiteman for their advice, comments, and nonchalant genius.

CHAPTER 1

COMPUTER GAMES AND LEARNING: WHAT'S THE CONNECTION?

In this thesis, I make a case for conceptualising the educational value of computer games in terms of semiotic resources with which to make meaning. Computer games consist of ways of construing ideas, beliefs and experiences. As a genre of social interaction, they are characterised by social relations which sustain and arise in particular kinds of cultural contexts. These relations make for forms of being, ways of constructing the self and its relation with others. My argument is that this configuration of semiotic resource, forms of being and cultural contexts make possible certain kinds of thoughts and experiences, or in other words, certain kinds of meanings, and that computer games are educational in that they enable individuals to produce such meanings.

Meaning is produced by individuals in their encounter with the world; it is the outcome of the individual's 'take' on an aspect of the world, and determined by that individual's subjective relation to such an aspect. It does not only reflect such a relation, however, but constitutes it, semiotically and materially. I do not make a distinction therefore between 'what the world is' and 'what the world means to me'. The 'me' in this statement however is not fully determined prior to the act of meaning-making but emerges within it. In other words, meaning is produced to achieve subjectivity. To claim that a 'me' is produced in acts of meaning-making is not to dismiss the materiality or conceptual validity of the individual but to describe the conditions under which such materiality is intelligible, to itself and to others. In examining the meanings made by young people, I therefore examine how they emerge as subjects, with subjectivity defined relationally, demarcated with and against other subjects. The analysis highlights the processes by which games are used to establish social relations, and by extension, to construct a sense of self. I argue that the ways in which games are played, interpreted and designed are a

function of the social relations within which they are located and which they make possible.

The thesis throws some light on the educational value of computer games by conceptualising learning and meaning making as the same process viewed from different disciplinary perspectives (Kress 2003, 2005a & c). When meaning-making takes place in the context of an educational institution and is valued according to criteria set within that institution, it is called learning. The difference between learning and meaning-making, or learning and not learning, relates to how a particular kind of process is valued and located institutionally rather than in the nature of the process itself. Such a definition of learning is not a form of educational populism: the purpose of defining learning in this way is not to celebrate whatever meanings people produce. Rather, this definition enables me to make a distinction analytically between meaning-making and the social and institutional judgements made about such meanings. In this way, I can study the relationship between forms of meaning and the social and institutional context, rather than defining the former according to terms set by the latter.

On the basis of this, learning and the semiotic production of subjectivity can be conceptualised as analogous processes. To learn is to become a particular kind of social subject. Different contexts sustain different ways of demarcating and valuing subjects. I define context as a particular configuration of semiotic resources, including specific materialities and social relations. A classroom is one kind of context insofar as it consists of particular materials (such as tables, chairs, computers arranged in some kind of spatial configuration, as well as paper, pens, students' bodies, and so on) and social relations (individuals relate to each other as pupils or teachers or administrators and so). These material entities are semiotic resources because they are the 'stuff' with which meaning is made in a classroom. The purpose of examining the production of meaning in different contexts, therefore, is to explore how particular configurations of semiotic resources sustain and are sustained by particular kinds of subjectivities.

In Section 1, I define my research question and describe briefly how I propose to answer it. In Section 2, I review the arguments for defining learning as meaning-making. As this is an important premise of the thesis, I situate my conception of learning in relation to existing frameworks with some similar theoretical assumptions and clarify my choice of framework. In Section 3, I review the literature on computer games and learning in order to highlight three problems which this thesis is intended to address. These problems relate to the theoretical framing of the relationship between computer games and learning.

Section 1: Defining the research question

My main research question is: what are young people learning when they make computer games?

I address this from two perspectives:

(1) how can a conception of learning defined in terms of the development of subjectivity be theorised?

(2) how can such a conception of learning be empirically investigated?

The theorisation of a concept of learning as the development of subjectivity is the focus of Chapter 2. I bring together two bodies of work. The first is that of Gunther Kress (1997, 2003a, 2005a, 2005b; with van Leeuwen 1996, 2001; Hodge & Kress 1988), in the field of social semiotics, which provides me with conceptual tools to describe young people's computer games as multimodal, semiotic artefacts. Social semiotics as a discipline conceptualises material entities and processes as semiotic artefacts and processes. This means that any object or process can be analysed for the way in which it sustains the production of meaning by individuals. Meaning is not understood to be a property of writing or speech only, but of all forms of culturally-rendered materiality. All material objects which are part of social

practices are, within this theoretical framework, semiotic signs. Materiality becomes semiotic resource as a condition of social intelligibility.

What distinguishes social semiotics from other semiotics-based approaches[1] is the concept of 'interest', which describes the social motivation which individuals have in making meaning. The concept of interest implies that signification is not merely the application of objective grammatical or ideological rules, as implied by structuralist cultural analyses (Tudor 1999). Neither is it only a consequence of difference between signifiers. People interpret the world from subjective positions, which can be accounted for in terms of their own histories, beliefs, values, and at any one time, place in space. This constitutes their interest. Meaning-making is always 'interested' in the sense that it actualises the meaning-maker's position in the world and is a form of action within the world – we make meaning for particular purposes, to achieve social goals.

Kress (2005a) argues that

> *questions of meaning and of learning are in essence the same questions, though posed from distinct disciplinary perspectives and therefore with different purposes. One cannot have a theory of learning without a prior theory of meaning; and a theory of learning always entails a theory of meaning.*

If meaning-making and learning are analogous processes, it follows that learning is also 'interested'. This argument is designed to counter definitions of learning based on a metaphor of acquisition, in which the object of learning is understood to be distinct from the learner, and where failure to demonstrate abstracted knowledge is assigned to cognitive weakness. The concept of interest frames learning as a product of social relations rather than cognitive competence. Knowledge is developed and

[1] For example in the early work of Barthes (1957)

demonstrated within specific situations and is not separable from experience, and the meaning of such experience to the individual.

Although Kress theorises the concept of interest, it is not within the purview of social semiotics to describe how individuals come to know their own interest. For this, social theory is needed. The second body of work I draw on in Chapter 2 is that of Judith Butler (1993, 1997, 1999a, 2004, and with Laclau and Zizek 2000), who describes the means by which subjectivity is produced as an effect of meaning-making[2]. Subjectivity is usually said to precede meaning-making: when we speak, write or draw, it is sometimes understood that identity must first be in place prior to such an act. Butler argues that meaning-making does not simply describe a state of affairs but brings it into being. Given that sign systems are intersubjective and confer meaning by classifying and categorising in particular ways, it follows that in interpreting the world, subjects draw on resources which precede them and which establish the terms by which it is possible to think and act. Making meaning is not therefore something which leaves the subject unaffected, but rather is precisely how the subject comes to know its own thoughts and beliefs. Since subjects continuously make meaning, the constitution of subjectivity is a reiterative practice; subjectivity is never fully settled but always remade through semiosis. Drawing on the work of Austin (1962), Butler calls this process performativity. Subjects make meaning in order to achieve a particular subjectivity, and the terms by which they do so are socially made.

In order to bring Butler's re-working of the concept of performativity together with Kress' concept of interest in meaning-making, I define a concept of motive, which is the generative principle by which meaning is made by individuals. The term motive is intended to underline the compulsive nature of meaning-making; if we make meaning in order to achieve subjectivity, it follows that meaning-making is the very basis by which social intelligibility is conferred.

---

[2] Butler uses the term 'language' rather than meaning-making, but does not restrict her work to linguistic systems of representation only. For this reason, an analogy can be made between her use of the word 'language' and my use of the term 'meaning-making'

In Chapter 2, motive is described as emerging from the interaction of three elements: context, semiotic resource and subjectivity. Given that these are understood relationally, they cannot be defined or studied in isolation. Context is constituted by social relations and semiotic resources, and is not conceptualised as a separate entity. Similarly, since subjectivity is understood to emerge through processes of meaning-making, it follows that what can be meant relates to available semiotic resources, and that subjectivity is thus related to semiotic resource as well as social context. However, by making each element the focus of one analysis chapter, I aim to describe the function of each element in the development of motive and processes of meaning-making.

The concept of motive is described in order to investigate materials collected as part of a research project called 'Making Games: developing games authoring software for educational and creative use', which ran from 2003 to 2006 in partnership with a software development company called Immersive Education. It was funded by ESRC, EPSRC[3] and the UK Department for Trade and Industry, and headed by Professor David Buckingham and Dr Andrew Burn. I was the project manager. The project developed software which young people could use to make their own computer games. Data were collected over a three year period, with people aged between 12 and 14 as well as their teachers, in a number of sites, including two schools, two after-school clubs and a number of young peoples' homes. Such data consisted primarily of games made by students over periods of five to eight weeks as well as video recordings of the production process.

Much of these materials cannot be shown directly in this thesis, although I include screenshots from the games which students made. Chapter 3 describes the software used in making the games.

---

[3] ESRC: Economic and Social Research Council. EPSRC: Engineering and Physical Sciences Research Council

One of my aims in starting this thesis was to find a way of describing the games which students made. They are rather strange entities, sometimes humourous, often bizarre, and unusual, in the sense that it is only recently that non-professionals have been able to engage in game-making with dedicated software. Most are difficult to play (or 'read' textually) without assistance from someone who knows the underpinning rule system, in other words, how they have been assembled technically. I have shown these games at a number of education conferences, usually within a 'games and learning' stream, and without my commentary (and sometimes with it), conference attendees have not known what to make of them – how to interpret or make sense of them, or how to make a judgement about educational value. This response is not unexpected. In calling the texts 'games', an expectation is set that they can be made sense of in the same way that one might make sense of commercial games. Notwithstanding the methodological difficulty of describing commercial games (a difficulty which has given rise to the field of Game Studies), it is clear that the conditions under which young people make games are very different from those pertaining to commercial games. I therefore wanted to be able to account for these phenomena, by developing an approach for describing them systematically and providing an explanation for why they had emerged as texts in the way that they had.

The Making Games project was concerned primarily with developing software and pedagogic approaches for teaching 'game literacy' in schools, with such a literacy defined as a sub-set of media literacy. This thesis has a different purpose, although there are common areas of interest. I do not have a background in teaching and have little experience of curriculum development in schools. Although I helped write teaching packs and worked with teachers to develop courses, I have little basis on which to give advice on how to teach media education or English. Previously, my academic work focused on analysing the significance of technology for higher education and conceptions of professional roles therein (Pelletier 2005a). This thesis picks up some of the same themes, although rather than commenting on institutional systems, I am here looking at entities produced within specific educational sites. My

concern is with how subjectivity is constituted in processes of technology use rather than with curriculum development.

In Chapter 3, I describe the materials that were generated as part of the 'Making Games' project and the way in which they have been reconfigured as data in my thesis. Rather than understand students' games as signifiers of 'game literacy', I take them as signifiers of subjectivity. In order to conceptualise the games as semiotic entities, I draw on multimodality theory (Kress & van Leeuwen 1996, 2001; Jewitt & Kress 2003; Jewitt 2002, 2003a, 2006; van Leeuwen 2005) and Foucaultian discourse analysis (Foucault 1968, 1972). My focus in this is on students' motives. This means that I analyse the games to highlight the social functions which they perform. Such functions are understood to relate to context. In other words, the social purpose which the games fulfil relates to the nature of the context in which they were produced. My argument is that games are designed in specific ways in order to achieve a particular subjectivity in a site of production. This kind of argument is not novel in the broad field of discourse analysis (see for example Buckingham 1993). Here, such an argument is formulated in relation to the production of semiotic, rather than just linguistic, signs, and considered largely in relation to a specific and relatively new genre, computer games (rather than, for example, the research interview).

In order to understand how motive is formulated, I organise my empirical analysis to focus on what I understand to be its component elements. Chapter 4 compares games made in three sites of production: a media studies classroom, an after-school club and three students' homes. This highlights how the institutional context of production shapes the meanings made in making games; I show for example that in the classroom, games are designed to illustrate concepts central to media studies, such as narrative, whereas in the after-school club, games serve to position students as particular kinds of players. There are also continuities across the three sites.

In Chapter 5, I compare how gender is signified in three genres of interaction: a focus group discussion about games and carried out after class; drawings of game screenshots produced by students as homework; and games made in an after-school club. This highlights the relationship between semiotic resource, as materiality in conventionalised forms of interaction, and the production of meaning. My argument is that the identification of gender is a function of the resources available for producing meaning; in this instance group talk, still image and game making using a particular piece of software. Materiality cannot be extricated from context. In this chapter, different resources are compared in different contexts. However, such contexts were selected for the emphasis placed on different materialities, and the analysis focuses on particular materials of semiotic realisation. This brings into relief the ways in which subjectivity is realised not only in relation to discourse, but also in relation to semiotic resource as the means of discursive realisation.

In chapter 6, I compare the production of fan subjectivity in one site of production using one genre of interaction, and analyse the games made by students in an after-school club. This highlights the way in which processes of game-making are shaped by students' efforts to secure a particular kind of subjectivity within the group, by establishing social relations with others. My argument here is that students' motives can be conceptualised as a process of social differentiation and affiliation; they establish a social identity within the group by situating their games in contra-distinction to, and in affiliation with, social constituencies or points or authority which distinguish particular consumer products and their audiences.

The main purpose of this thesis is to explore the performative production of subjectivity in game-making by young people. I do not set out to answer how computer games or computer game-making promote learning 'in general'. This is because such a question cannot, in my view, be answered. This is for two reasons. The first is that meaning-making / learning is produced in relation to a complex of elements, which I describe in terms of context and subjectivity, and not only

software *qua* semiotic resource. I return to this issue below in describing the policy-based literature on computer games and learning.

The second reason is that 'game' is a concept rather than a specific material entity, or an entity with specific material attributes. Sutton-Smith (1997) argues that definitions of 'game' and 'play' vary according to the disciplinary perspective from which a wide variety of phenomena are perceived. Wittgenstein (1967) uses the concept of 'game' to make the argument that entities belonging to the same class may not all share an identical set of attributes but rather 'family resemblances'. What counts as a game is what can be generally agreed to be a game, with such judgements made on the basis of related sets of attributes rather than formal components defined a priori. This is the definition of game used in this thesis, and also the reason I refer to games as a genre (in reference to genre theory – see Hyland 2002). The implication is that the object of study in this thesis is not 'game' as a formal entity, but what counted as a game in the sites of research: a game was anything that was produced using the game-authoring software which was supplied to students as part of the Making Games project. Judgements are not made about whether the software-based entities which students made can be described as games or not. This means that what I count as a game in this thesis is the output of a particular process (making a semiotic arrangement using a particular piece of software called 'Making Games[4]' and within the context of activities referred to as 'the games module' or 'the after-school game-making club') rather than an entity with more generalisable attributes. The research question 'what are young people learning when they make computer games' is not therefore to be answered in reference to 'computer games' as an a priori class of entities, but rather to games as a genre, defined in contexts of use and production, and in relation to specific means of material realisation. For this reason, my interest is primarily in theorising and investigating empirically the production of subjectivity in instances of meaning-making, rather than in making generalisable claims about the educational value of

---

[4] The software is now called Mission Maker and is being sold to schools through Immersive Education

computer games (and assuming that such claims could not in any case be made validly).

Section 2: How learning can be conceptualised as meaning-making

The analogy between learning and meaning-making exists in a range of work in the field of education research. In this section, I review arguments made by Stables (Stables & Gough 2006; Stables 2006 a, b, c), who locates himself in the discipline of the philosophy of education. I then go on to discuss arguments characteristic of work broadly inspired by Vygotsky (for example, Bruner 1996; Cole 1996; Lave & Wenger 1996). My aim is to clarify the implications of defining learning as meaning-making, as well as the choice of a theoretical framework in this thesis. I will not be drawing on these approaches but there are common areas of concern.

Stables on Living as Semiotic Engagement

Stables argues that definitions of learning have traditionally been rooted in a Cartesian dualism which separates mind from matter, with the former emphasised in cognitivist accounts and the latter in behaviourist accounts. Such a dualism assumes there is an educable inner intelligence which is distinct from a trainable bodily organism. Cognitivist or mentalist accounts tend to emphasise that learning is experientially distinct, in that it is particular to a person or personality. Such a view sustains the belief that people with (what is conceived as) the same bodies (i.e. humans of the same age) have different mental abilities, as if mind operates on a different dimension from body. Behaviourist accounts tend to emphasise that learning is unproblematically observable (i.e. you either learn or you don't: it isn't a matter of opinion), a view which reifies learning whilst applying it to a wide variety of material practices (see Stables 2006a for a more detailed account of these positions).

Stables' point is that although both positions have traditionally been defined in opposition to each other, the one entails the other. A mind-matter dualism makes thought an attribute of a human mind (not an animal mind), and thus, according to Stables, encourages a materialist definition of mind as brain. This frames the body as largely unthinking, or at least predictable and controllable, an argument familiar to behaviourism. Although both positions have been extensively critiqued, the dualism on which each is based, according to Stables, remains central to educational practice as well as to certain branches of education research. Examples include the belief in education policy that a curriculum can be delivered, with predictable outcomes in students' minds and bodies, as well as the differentiation of age cohorts by ability.

Stables seeks to establish a way out of this dualism by collapsing the difference between sign and signal: sign as a communicative, interpretative and social element and signal as a brutish, unthinking, determined response. Instead he suggests that both categories of elements be treated as one and as sign, in that actions are always responses to meaning. Signs in this definition are clearly not mere mental representations, means of expression or 'tools'; they are primal rather than representations of 'what they stand for'. Such a definition, Stables (2006c: 375) argues, collapses the distinction between "the rational mind and the mechanical world", a distinction which could also be said to underpin the opposition between (individual) agency and (social / material) determinism in some social theory[5]. All living can be perceived as semiotic engagement, insofar as all living is a response to meaning. Stables' argument here is made in reference to work in the field of biosemiotics (e.g. Emmeche 1999).

The implications for definitions of learning are as follows. If one accepts that all living is semiotic engagement, then learning must be either a distinct form of semiotic engagement or a term applied to general semiotic engagement in certain contexts. However, there is no evidence that learning is different from other semiotic processes:

---

[5] I return to this issue in Chapter 2, notably in discussing the work of Bourdieu and Butler.

> *The activity of doing one's maths homework, reading for a degree or wrestling with a difficult personal problem certainly call for interpretation of a series of signs, some of which may seem ambiguous in context, but the fact that difficult or significant choices or outcomes may hang on such interpretations does not render the act of interpretation qualitatively different from any other.* (Stables 2006a: 7)

Learning cannot therefore be an attribute of a particular kind of event. This means that there can be no observable 'learning behaviour' or 'learning processes', as identifiable from other kinds of behaviour or processes: "the semiotic perspective [...] effectively renders learning theory obsolete" (: 9). The argument that learning describes the ability to engage in new kind of events is also problematic, since it relates learning to the individuals' evaluation of 'newness', which could subsequently be revised; also the description of an event as 'new' does not necessarily entail the attribution of learning to its familiarisation. Also, the fact that repeated practice brings about perceived improvements in performance does not in itself warrant a distinction between learning and other forms of living.

Learning could be understood as an attribute of the individual's response to an event. But such an attribution is highly unstable, in the sense that an event might be described as 'learning' in one context but not another. Practices that take place in formal educational establishments and processes leading to the award of qualification are often referred to as learning, as are events which are understood to have had a significant effect on life history ('I learned a lot from that relationship'). In the second case, the attribution is retrospective, and is justified in relation to a subsequent perspective rather than to the event itself. It is for this reason that Stables (2006c: 375) argues that "learning does not happen", it is rather a deferral of meaning. In the first case, if there are no specifically 'learning processes', it follows that there can be no specifically 'learning institutions' – contexts which enhance

semiotic activity: "There is no evidence, other than anecdotal, of 'education' enhancing the capacity to learn, or, indeed, of there being any such distinct capacity" (Stables 2006a: 8).

Although Stables' argument strips certain contexts of perceived distinctive 'learning' properties, it is not a critique of schools or teaching *per se*. Within a semiotic perspective, the function of schools is construed as encouraging experiences that will come to be regarded as learning experiences, "experiences of personal significance [...] to promote positive identity development" (2006b: 2). This is somewhat problematic, for a number of reasons. If living is semiotic engagement, then all experience has significance. The issue then becomes which or what kind of significance. Here, Stables' approach seems to fall short, precisely because it defines the individual as a separable entity from context. Individuals produce and interpret signs 'in' context, but the relationship between the organisation of context and distribution of signs between individuals is not explored. This means that Stables has little to say on why individuals make some signs and not others, other than such signs have significance to them, a rather tautological argument. As a consequence, the nature of the relationship between semiosis and 'identity development' remains unclear. In breaking down the boundary between mind and matter, Stables seems to have erected another between individual and context, or at least to have failed to clarify what an individual 'is' if all living (or life) is semiotic engagement. One could argue that an individual is known as such by belonging to a particular kind of collectivity, but Stables does not examine the nature of such a collectivity. In other words, he does not appear to theorise the social, or relationships between individuals and how these are established.

As I will explore in Chapter 2, it is difficult to explain semiosis without paying attention to its purpose, with such a purpose often relating to the negotiation of intersubjective relations. In this thesis, I am interested in the 'identity development' of young people, but it is difficult to understand such developments as largely autonomous or self-contained processes. One identity is identifiable against other

identities, and develops in relation to such identities. In other words, individuality is achieved through semiosis – one cannot presuppose it, or the purpose of semiosis itself remains untheorised, as does the nature of 'personal significance' or 'identity development'. For this reason, a theory of individual semiosis also requires a theory of how such individuals relate to each other (and to themselves) with signs. Such is the purpose of the concept of discourse in social semiotics and social theory, not as a linguistic process, but as a conceptualisation of the organisation of signs and the significance of this for the development of subjectivity.

Vygotskian approaches to theorising learning as meaning-making

The work of Vygotsky is often referenced in research which focuses on the relationship between culture (defined as social interaction) and individual psychological processes. Derry (2004) argues that Vygotsky's aim was also to break down the Cartesian dualism, by examining the nature of mind in terms of embodied activity. His intention, according to Derry, was to develop an account of freedom based on a notion of human behaviour as neither controlled nor based on pure acts of will; a notion of freedom, in other words, which avoided its common conception as 'freedom from constraint', and thus the opposition between active and passive beings. If the development of mind and will is understood to be formed and sustained by material practices, the coexistence of freedom and constraint is no longer paradoxical. Our interests, desires, wants and understandings are mediated by artefacts, including language, in the social domain: "self-determination is not possible through a pure act of will, but arises in (indirect) mediation – the mind is steered towards its intention" (Derry 2004: 117-118).

In education, Vygotsky's work is used to argue that learning is mediated by tools, for example speech, writing, a computer, or an image. The use of the word 'tool' serves to emphasise that such artefacts are used to perform situated functions: "Vygotsky [insisted…] that the analysis of the development of word-meaning must begin with the analysis of the function of the word in mediating specific types of

social interaction and communication, in mediating specific forms of social practice" (Minick 1996: 41). Learning language is therefore a function of learning to perform social tasks and realise one's will in context. This view complements the need for a conception of interest and motive, identified in the first section of this chapter.

Vygotsky's work has been interpreted and drawn upon by a number of theorists in the field of psychology and proved important in the emergence of cultural psychology (Cole 1996; Bruner 1996). Cole (1996) argues that discussions about whether thought is located in the head or in the environment create an unprovable and unsound duality. By observing interaction and discourse, we are seeing thinking as it is created and co-constructed in joint action. From this perspective, sign-making in social experience cannot be separated from thought in the mental life of individuals. Bruner (1996) also emphasises that classrooms are communities of learners, and that learning is what we call meaning-making in such communities. Thoughts, as signs, only arise in inter-individual territories, within a social unit, and are essentially acts of interrelation and interaction.

The location of Vygotsky in the field of psychology means that his work tends to emphasise the internalisation of meaning, rather than specifically the conditions for its generation. This has led some theorists to argue that he treats language as a neutral reflection of reality, as if reality were separate from its linguistic expression (Buckingham 1993). This criticism appears to be corroborated by the distinction Vygotsky makes between material tools and psychological tools (Kozulin 1996), which positions language as a psychological rather than (also) a material practice; and also by the opposition he draws between 'inadequate' and 'adequate' ideas (Derry 2004) or 'spontaneous' and 'scientific' concepts. Such oppositions seem to be based on the assumption that there is a neutral point (i.e. one that is not socially and temporally located) from which such distinctions can be made. The opposition between psychological and material tools also essentialises 'sign' rather than defining it relationally, as a relation of meaning. This is a problem if one is to study

meaning across symbolic systems, rather than attributing its existence to language only.

It is because of an emphasis on internalisation that Lave & Wenger (1996) argue that early versions of Vygotskian activity theory consist of only a small 'aura' of socialness. They draw on Engestrom's (2001) re-working of Vygotsky's activity theory to move away from concerns with cognition, and define learning "as the historical production, transformation, and change of persons" (Lave & Wenger 1996: 145-146). The historicising of the production of persons and the process of learning is intended to contrast with ahistorical views of internalisation as a universal process. Whereas Vygotsky emphasised the role of language, Lave and Wenger focus on participation in social practices. This removes language from its privileged position as a 'tool' of understanding, and conceptualises meaning-making as the situated negotiation of social relations, rather than as a mediator of objective reality:

> *Participation is always based on situated negotiations and renegotiation of meaning in the world. This implies that understanding and experience are in constant interaction - indeed, are mutually constitutive. The notion of participation thus dissolves dichotomies between cerebral and embodied activity, between contemplation and involvement, between abstraction and experience.* (Lave & Wenger 1996: 146)

This view conceptualises 'knowing' as activity by specific people in specific circumstances. No distinction is made between learning, meaning-making, and the establishment of identity within a setting. Learning is about becoming a particular kind of person and only incidentally about being able to perform new activities, tasks or master new understandings. This is because activities, tasks and understandings do not exist in isolation, but are part of broader systems of relations in which they have meaning. These systems of relations emerge from, are

reproduced by, and transformed within social communities. The implication is that studying learning means analysing changing forms of participation and identity. This is also a premise of this thesis.

Although Lave and Wenger (1991) distinguish between different forms of participation in communities of practice, their focus tends to be on the maintenance of participation/practices. This can be explained in terms of their location within the field of anthropology. The anthropological attention to group identity and group rituals has developed at the expense of an interest in what might be broadly termed 'will' and its formation by individuals, a focus of the take-up of Vygotsky's work in psychology. As Whiteman (2007) argues, this means that the community-of-practice model of researching learning tends to focus on how practices are perpetuated, and gives less attention to the way such practices are established and destabilised, and the social strategies thereby pursued.

The empirical aspect of this study is concerned with the establishment of a social practice which participants had not previously engaged in, namely game making. What I am particularly interested in is how this practice was shaped by, and re-shaped, historical relations in the contexts of research, as identified in their games. What enables me to combine Kress' social semiotics and Butler's social theory is the attention they pay to the theorisation of transformation and time, and how 'change' or 'difference' can be known. I return to this in Chapter 2.

Section 3: Why this study now? Current interest in computer games and learning

In this section, I will introduce some of the existing literature on computer games and learning. Following a brief introduction to the area, my aim is to identify particular research practices, including theoretical models, employed to understand and analyse games and learning. I focus on those practices most relevant to my

research questions. In this respect, I identify three problems in the existing literature which this thesis hopes to clarify and address.

An introduction to research on digital (computer and video) games and learning

Computer games have recently been the subject of much interest among policy-makers and education researchers. In the UK, Becta (British Educational Communications and Technology Agency), the government agency responsible for overseeing the implementation of technology in schools, carried out a research project on the use of commercial, off-the-shelf computer games in schools (Dawes & Dumbleton 2001). This was followed by a review, funded by the policy body TEEM (Teachers Evaluating Educational Multimedia), on the educational content of a number of games (McFarlane *et al* 2002). In 2004, literature reviews were commissioned by two further policy bodies (Mitchell & Savill-Smith 2004 for the Learning and Skills Development Agency; Kirriemuir & McFarlane 2004 for Nesta Futurelab). The UK Department for Education and Skills (DfES 2005) subsequently published a report advocating the use of games in schools and highlighting the need for further research on issues of implementation. This issue was taken up in a report commissioned by the Learning and Skills Research Centre which provides case studies of the use of games and simulations in the post-16 sector (de Freitas *et al* 2006). JISC subsequently commissioned the report "Learning in Immersive Worlds: a review of game-based learning" (de Freitas 2007). There have also been a number of industry-sponsored reports, including "Unlimited Learning: computer and video games in the learning landscape", published in 2006 by ELSPA (Entertainment and Leisure Software Publishers Association) and ESA's (Entertainment Software Association) summary of academic research on games and education, available and updated online[6].

---

[6] This is available here: http://www.theesa.com/facts/third_party.php

Interest from policy makers internationally has led to funding opportunities for research in this area, from government and software developers. Several international conferences have dealt with the theme of digital games and learning (for example, Education Arcade 2004 and 2005; Digra 2006); regular conferences on technology and education have featured a large number of papers on issues pertaining to games (Computer Assisted Learning (CAL) 2005, Ideas in Cyberspace (ICE) 2005); and journals have commissioned special issues on the topic (e.g. *Learning, Media and Technology* vol 35, issue 4, a forthcoming issue of *E-learning*).

Much of the policy-oriented literature develops certain arguments from prior work in the fields of military training, health care and business training, where digital and non-digital games have been used widely (see Egenfeldt-Nielsen 2005 for a review of this literature). The Becta and TEEM reports into the benefits of computer games, for example, define the educational potential of games in terms of the opportunities for players to evaluate information, hypothesise solutions, make decisions and work in groups (Dawes & Dumbleton 2001; McFarlane *et al* 2002). Kirrimuir & McFarlane (2004) describe the skills games develop as strategic thinking, communication, and application of number. From this perspective, the rationale for using games for learning is that games have inherent potentials for developing generic skills. Given the time and effort children dedicate to game play, it is hypothesized that games may be a more motivating way of developing such skills than other teaching methods.

These studies are in part designed to allay concerns that computer games have only negative effects on people's behaviour, including heightening aggressive behaviour and shifting people's focus away from more worthy activities such as reading and writing, doing maths and playing outdoors (Anderson & Dill 2000; Walsh *et al* 2004). This literature extends debates about mass media as agents of cultural decline, from the novel to television (Buckingham 1993; Burn 2004).

More recently, researchers have also become concerned with how players learn to play computer games (Gee 2003, 2004, 2005; Linderoth 2006; Squire 2002). This involves conceptualizing games as embedded in social practices. Gee (2003) argues that when people learn to play video games, they are learning a new literacy, which involves not only decoding the game as semiotic object but also knowing various ways of acting, interacting, valuing and feeling. Learning in games is defined not so much as an outcome as part of the process of playing, and relates not so much to the representational content of the game (the setting, storyline, subject matter and so on) as to the complexity of its design and the social practices which this sustains. According to Gee, learning and playing are simultaneous and largely synonymous processes. The pleasures and frustrations of playing are akin to those of learning.

The interactive and multimodal features of computer games have been understood to develop and require new approaches to the interpretation of texts, as well as media audiences and institutions (Buckingham 2003; Burn & Parker 2003; Burn 2004; Beavis 1998). This argument extends notions characteristic of media education and media studies to games (Buckingham 2002). Studying the media is also described in terms of acquiring a form of literacy, designed to enable students to be fluent in different media 'languages'. The focus of this area of work is the development of pedagogic strategies and theoretical concepts to inform the teaching of media in schools. This approach refutes widespread assumptions that young people are inherently expert in the use, interpretation and production of new media. There are gaps in their knowledge and possibilities for making their understanding more sophisticated (Buckingham 1993).

Three issues in the field of games and learning research which this thesis seeks to address

1. The distinction between form and content and consequent transmission model of meaning

Characteristic of the literature published by policy bodies is the distinction made between form and content. The educational value of games is conceptualized in terms of cutting-edge, motivational wrapping for curriculum content. Dawes & Dumbleton (2001) describe games as an interface, a definition which sustains the distinction they make between the attractive visuality of games and their 'real' educational content, with the former potentially acting as a distraction to the latter. For this reason, 'realistic simulations' are seen to be most appropriate for classroom use. The same point is made in the report commissioned by TEEM (McFarlane *et al* 2001). Games like *The Sims*[7], *Sim City*[8] or *Railroad Tycoon*[9] are understood to have the greatest potential for teaching budgeting and management skills – whereas the presence of magic spells, for example, makes a game inappropriate (McFarlane *et al* 2001). It is on the basis of such research that the DfES (2003) e-learning strategy paper recommended that educational software developers and game designers collaborate in the development of new products, with a view to re-packaging curriculum content into the form of a game, with both the form and the content remaining relatively unaffected in their (distinct) meaning; students will believe they are playing a game, which will enable curriculum content to appear more motivating.

This model for defining the educational value of games is imported from the field of educational technology, where technology is sometimes conceived as an object with specifiable effects on learning, for example aiding research or facilitating

---

[7] A "strategic life simulation computer game" in which the player manages the lives of individual characters by allocating financial resources to social functions. The game's creator, Will Wright, refers to it as a 'digital dollhouse' (Wikipedia)

[8] Similar to *The Sims* but financial resources are managed at a city-level; the player is thus in the role akin to that of an urban planner or city mayor

[9] A game in which the player allocates financial resources to build and manage a railroad company. Other railroads attempt to put the player out of business by stock dealings and 'rate wars' between railroads

asynchronous discussion (Pelletier 2005a). Little attention is given to the meaning which such technological forms have in situ, in other words to the social and historical contexts in which technology is used and situated (Cuban 1986, 2001). This does not mean that features of technology use or game play context are treated as irrelevant. Context however is defined as a separable entity from cognition, so that context features are only noted to the extent that they are understood to shape the individual's reasoning. Objects and contextual features are defined as having inherent forms and attributes, which are then transferred to individuals (Arnseth 2006).

The form/content dichotomy is comparable in nature to the mind/body distinction discussed in section 2, in that cognition and experience are defined as separate processes, and cognition treated ahistorically. With respect to games, it means that the effect which games are perceived to have on cognition are understood to be distinct from the experience of, and the meaning assigned to, playing games. The emphasis in the literature on simulations, and notable lack of interest in graphically gory shooter games, indicates an assumption that the meaning of games is an attribute of form (the visual appearance of the game, including its representational subject) rather than of the situated experience of play (Pelletier 2006). For example, the actions performed by the player in 'realistic simulations' like *The Sims* are not intrinsically different from the magic-based *Harry Potter* games or shooter and role-playing games; in each case, resources are managed to achieve objectives. It is because of this that Gee (2003: chapter 2) argues that the educational value of games should not be defined in terms of simplistic notions of content (*qua* subject matter). Although the policy literature on games and learning has attempted to provide a counter balance to fears about games encouraging violent anti-social behaviour, it is based on the same model of meaning and subjectivity, with games understood to have inherent 'effects' on people.

Gee's (2003) work is often understood to offer an alternative model of theorizing the relationship between games and learning, and to collapse the distinction between the

form of a game and the meaning it has to players by defining games as a social practice (Arnseth 2006). His work offers a sophisticated argument about the relationship between games and learning, which has the virtue of defining clearly what he understands by both terms. Gee's rationale for writing about games is that there are highly successful implicit theories of learning embedded in well-designed video games, and that these can be the basis of learning activities. Games are thus examined as an instance of a more general theory of learning, which is derived from Vygotskian learning theory and the communities of practice literature.

However, the form/meaning distinction remains whilst morphing into a different guise in Gee's work, because of the way he describes the social practices of which games are a part. Buckingham (in press) points out that Gee's argument against a reductive view of 'content', which equates content with representational subject matter, divides content into two kinds: games as pedagogic designs ("the system of interrelated elements" which constitute the game's rules – Gee 2003: 40), and games as representations. The latter is deemed largely irrelevant to learning and to gaming as a social practice, since players are perceived to engage largely with the 'mechanics' of games, the interactive rule sets which distinguish games as a genre. Buckingham's critique of Gee relates to this neglect of representation in understanding games as practices, and to the consequent effective separation of learning from knowledge. His argument suggests that although Gee seeks to undermine the form/content dichotomy, he reinstates it by splitting content into two kinds, and conceptualizing the relationship between games and learning to emerge from the 'form' that games have as systems.

Gee's effective treatment of games as forms can be seen in his description of 'affinity spaces' and 'affinity groups'. Semiotic domains are said to sustain 'affinity spaces'; with games, such spaces are understood to support a plurality of routes to participation involving "porous leadership" and leaders who "don't and can't order people around" (Gee 2004: 87). This contradicts definitions of 'communities of practice' which understand them to consist precisely of negotiations about

knowledge, as a means by which power is exercised and social relations stabilised or destabilised. Whiteman's (2007) empirical study of an online community of *Silent Hill*[10] fans, for example, indicates that game-based 'affinity groups' consist precisely of struggles over knowledge, and that games, as semiotic domains, are not therefore removed from struggles over power and identity. To remove consideration of the disputed status of knowledge from an analysis of learning is to remove the basis on which communities of practice are established and negotiated.

Gee's perception of game-based 'affinity groups' stems from treating practices 'as if' they were static objects; stable over time, and defined in relation to things (games) rather than groups of people or activities. The learning theories which he describes are conceptualised as an attribute of games, which is why he makes a distinction between 'good' and 'bad' games, with only 'good' games facilitating learning. The contradiction here is that Gee theorises 'active' learners whilst treating them methodologically as passive. 'Active', 'critical' learning is understood to happen because of how games are designed.

In Chapter 4, I argue that the way a game is designed is a function of the social relations of which it is a part. Games are not recognisable on the basis of form (interfaces or systems of rules), but because of the meaning which a form has, as part of a social and historical context. In other words, what counts as a game is not a specific class of objects with certain formal attributes, but a function of relations between social participants. How a game's form is perceived and understood is thus not inherent, but related to participants' social purposes.

2. The equivalence established between subjectivity and the individual mind

A second issue which I will address in this thesis is not often understood to pertain to research on the relationship between games and learning, which is why I did not mention it in my introduction to that area. It concerns young people making games, within a framework of activities construed as educational. Most of this research has

---

[10] A survival horror video game

historically been inspired by the work of Seymour Papert (1993), and has located itself within the tradition of constructivist research into maths and science learning using simulation-building tools, also known as microworlds. Within this tradition, Kafai (1996, 1999, 2000, 2006; Kafai *et al* in press) has been the most explicit in establishing a link between playing computer games and making them for educational purposes. However, her work is rarely cited in the literature reviews on computer games and learning referred to above (e.g. Mitchell & Savill Smith 2004). I would argue that this is because the recent interest in computer games for learning has conceptualized games as interfaces rather than practices, and so does not perceive children *making* games as relevant. However, it is also the case that Kafai's work makes very little reference to the burgeoning academic literature on game studies and empirical, ethnographic work on game play (e.g. Carr *et al* 2006; King & Krzywinska 2006;, Raessens & Goldstein 2005; Atkins 2003). This is in part because games made by children are conceptualized as a product of the individual's mind, rather than an instance of a cultural form made in a specific kind of context[11]. I will discuss Kafai's work to highlight the problems which this raises[12].

Kafai (1996, 2000) uses content analysis to compare games made by boys and girls using Logo[13] in a laboratory setting. The students were asked to make games that teach concepts, such as fractions. Conclusions are drawn about features of games which appeal to boys and girls.

This research design is problematic. In analyzing the content of young people's games, no consideration is given either to the social context in which production took place (as part of a lab-based research activity), or to the semiotic resources available to students in constructing meaning. Yet Logo is software which allows certain kinds of semiotic constructions and not others. It also has a history. In

---

[11] Much of the ethnographic work on computer game play has been published in the last five years, after Kafai's early work on children making games. However, the use of a laboratory setting to study young people's beliefs about games indicates a methodology rooted in experimental psychology rather than ethnography or sociology

[12] My comments on Kafai relate to her work specifically, rather than to constructivism generally

[13] Logo is a programming language created for educational use, notably to teach computer science concepts. It is known for its 'turtle' graphics

children's lives, it is more likely to be used in school than at home. In asking children to make games, Kafai overlooks the fact that she was effectively asking them to make educational resources using educational software. When she states that girls used educational software as design models, rather than video games, she concludes that this may be a result of how the two genres are marketed. It could reasonably be argued however that the young people in her study positioned themselves differently according to gender in relation to educational software design tools, educational contexts and education researchers, rather than just to games themselves. The problem is not so much with her conclusion as with its cause. Meaning is understood to precede semiotic production, and therefore remains unaffected either by the resources available for meaning-making or the historical and social context in which such meanings are made. Game-making is conceptualised as an occasion for the demonstration of a priori faculties and interests (the socialized mind), rather than as a set of conditions under which the production of meaning is determined.

Kafai (2000) justifies her work in terms of identifying new game design models which girls will find meaningful and engaging. Game making is understood to be worthwhile to the extent that producers situate themselves in counter-position to existing designs, which are described in largely negative terms as violent and competitive. In describing girls as antithetic towards such models, it is understood that their own game designs will provide alternatives, by giving girls opportunities which the predominantly male games industry denies them, that is, to express their own interests as game designers / players. Such interests are understood to spring from their gendered self, which transcends the restrictions of context and material semiotic resources.

Kafai's approach could be compared to feminist attempts to identify an 'écriture feminine', a specifically feminine form of expression which would remain untainted by patriarchal discourses. In this respect, Kafai tackles a familiar question in feminist work, which is the extent to which existing frameworks for understanding

the world reflect and perpetuate gender inequalities, or can be appropriated to undermine such structures. Her research question might be formulated as follows: given that games as a genre are currently oppressive of girls, is it possible to identify models of designs which would be more inclusive of girls' tastes? The question's assumptions mean that little value can be ascribed to pointing girls towards existing traditions of game design to help them make their own. It also positions girls' tastes in opposition to 'oppression', without considering that 'inclusive' game design might be just as 'oppressive' (oppression is conceptualized in terms of quantitative inequality in the numbers of men and women in the games industry, and more widely science and technology, rather than in terms of qualitative evaluations of political agendas and power relations).

Kafai's approach can be compared to Abbs' (2003) description of the 'old arts paradigm', which describes one approach to arts education. The old arts paradigm is based on a combination of progressivism and modernism, and emphasizes personal learning, sincerity and spontaneity, with little formal mediation. The aim of production is to develop expressivity and personality, rather than engage in an apprenticeship into a tradition of design. The value of personal expression is described in psychological rather than aesthetic terms, as process rather than in terms of the achieved product. The semiotic material from which expression is made is attributed to the a priori self rather than to cultural resources and material tools. Within this paradigm, the self and culture are defined in oppositional terms, with students' spontaneity of expression positioned as a remedy or counterweight to the crassness and artificiality of cultural products.

The problem which the old arts paradigm comes up against, as well as certain attempts to identify an 'écriture feminine' or in Kafai's case, feminine game design, is where such spontaneous, personal expression comes from. Whilst emphasizing historicity in identifying the problem – gender is social not natural, game design has evolved into a patriarchal genre but need not be so – it denies historicity in

proposing a solution, arguing that expression can spring authentically from one's inner, true and transcendent self.

I would argue that game-making is not primarily an act of psychological adaptation or construction, but concerned with sign-making, and as a consequence, with collectivised resources for understanding and making culture. Making meaning involves participating in practices, drawing on semiotic resources, genres and models of design, and making them new through recombination and transformation. This approach certainly does not resolve all the issues which Kafai identifies, such that people are positioned differently in relation to available resources according to gender, but it hopefully provides a firmer basis from which to tackle them.

In Chapter 5, I examine the production of gendered subjectivity across different kinds of semiotic resources and genres of interaction, to explore how subjectivity emerges in relation to context and semiotic resource. My argument is that the way girls and boys discuss and design games is a function of social positioning within context rather than the expression of an a priori self.

3. The lack of theoretical clarity about what is produced when young people make games

The last set of issues which this thesis aims to address is closely related to the aims of the Making Games project, within whose framework the activities described in the empirical chapters originated. It relates to conceptualizing the process of game making as a broader category of activity, in order to identify its potential educational benefit. As indicated above, the aim of the 'Making Games' project was conceptualized in terms of developing literacy, specifically 'game literacy'. This aim extends arguments characteristic of media education to computer games (Buckingham 1993, 2003). It depends on the notion that textual genres, such as television or film, are languages, which can be taught and learned. This view challenges conceptions of literacy as a generalisable competence and focuses on

how grammars emerge in relation to social context, with texts shaping and shaped by such context.

The emphasis on the situated nature of meaning-making, however, makes the application of a normative term such as 'literacy' problematic. For this reason, Buckingham (2003: chapter 3) criticizes approaches to media literacy which conceptualize it as a norm-referenced set of cognitive competences, as this fails to recognize that what young people say and think about media forms is socially situated – i.e. it serves interpersonal functions. The term literacy remains justifiable in Buckingham, I would argue, in relation to a programme of teaching rather than as a description of students' work; or more precisely, media literacy is a process rather than an outcome (i.e. what students do as part of such a programme is literacy). This is not to say that the outcome is unimportant. However, there is a lack of theoretical clarity about how to conceptualise this outcome, if one is to avoid reducing what students do to what they have been taught.

This lack of clarity is particularly important in conceptualizing 'what is produced' when young people make their own games. Using the term literacy implies that 'game literacy' involves not only being able to 'read' games, but also 'write' them; this was the justification for the Making Games project in the proposal documentation. The social definition of literacy which the project was based upon, however, blurs the boundaries between 'reading' and 'writing', by defining reading as an active process of making meaning, rather than concerned with the internalization of meaning 'in' text. However, if reading itself is a form of semiotic production, then what is the specific rationale for 'writing' activities? Towards the beginning of the Making Games project, the rationale for making games (as opposed to just 'reading' them as texts in class) was defined in terms of making young people's understanding of games more "explicit", since it required a different level of conscious control. This suggested that making a game is comparable to playing (or 'reading') it at the level of explicitness. Comparing making and playing games along the same axis of explicitness however establishes a hierarchy in which playing

is an inferior form of making. Yet the two types of practices are entirely interdependent (one could not make a game without having played games; making a game also involves playing it).

This problem was not particular to the Making Games project, but to the wider literature on young people producing their own texts, including work on creative writing. Dyson (1997) conceptualizes writing as a way of guiding the more deliberate use of words, and is a major source of reflection. Her work is based on a view of children as active interpreters, who reconstruct the meanings of texts according to immediate social interests. However, if children are 'active' meaning-makers, in what sense is writing *more* deliberate? Creating a scale of 'deliberateness' would seem to be based on a view of action (including reflection) as variable in terms of strength of intention, a notion which contradicts Dyson's emphasis on social context in matters of literacy. Moss (1989) focuses on the importance of teaching genre conventions, arguing that writing should be conceptualized as the appropriation of discursive practices rather than the unmediated statement of inner experience; expressing thoughts in writing is primarily a matter of manipulating discursive conventions. Moss does not establish a hierarchy between writing and reading, although she describes the hierarchies of power which differentiate powerful from less powerful discursive practices. One of the rationales for teaching writing is that less powerful discursive practices (those of students) can challenge more powerful ones (e.g. those associated with sexism). Although this recognizes the relationship between powerful institutionalised discourses and students' work, it can only account for the latter in terms of the former – so students' writing is perceived from the perspective of those powerful discourses, with students' writing either reproducing or re-negotiating them. This can neglect the way in which students' writing serves to renegotiate local relationships, a point which Dyson emphasizes.

As project manager for the Making Games project, the issue of how to conceptualise 'what is produced' when young people make games was highly pertinent for me, and

I have changed my thinking about it several times (see for example Pelletier 2005c for an early attempt at describing 'game literacy'). Playing games is clearly different from making games, but how precisely? Arguments about explicitness, deliberateness and the renegotiation of institutionalized discourses attempt to capture something about the value of production. I would not quibble about this value, but it is not clear to me how best to conceptualise it, pragmatically as well as logically. As a starting point, however, I would argue that assigning this difference to degrees of explicitness, conceptual clarity or critique is not convincing; reading and writing have distinct social significance rather than the same significance more or less powerfully articulated. The Making Games project provided access to semiotic resources which were very different to those provided by commercial off-the-shelf games. It follows that making games and playing commercial off-the-shelf games were very different activities, not least because of the context in which each took place.

In Chapter 6, I argue that one way of conceptualizing 'what is produced' when young people make games is design, in the semiotic sense of the word. I borrow this term from literature on social semiotics and multimodality theory (Kress 1998, 2000, 2003a, 2005b; Jewitt & Kress 2003). The notion of design implies that students transform semiotic conventions according to their interests as sign-makers – or, as I describe it, according to motive. This means that the way in which students make meaning is a function of how they seek to position themselves as subjects within context. This conception of semiotic production avoids understanding students' games only through the normative lens of 'literacy' (as the instantiation of pre-defined competences), or only in relation to powerful discourses (such as norms of game design), whilst not making claims about the degree of students' intention. The notion of design is also based on conceptualising 'reading' and 'writing' as kinds of semiotic production, rather than as semiosis in input and output form. This means that the difference between playing and making games is not accounted for in terms of degrees on the same scale, but in terms of the manipulation of different kinds of semiotic resources.

Conclusion

In this chapter, I have described my research question and situated it in the literature on learning as meaning-making, and computer games and learning. My study examines computer games made by young people in order to investigate the relationship between the games they make and the subjectivity they seek to achieve in context. Games are defined as a genre which sustains and is sustained by social, semiotic practices. Such practices are understood to emerge in relation to context, semiotic resource and subjectivity. My empirical chapters focus on the significance of each, to analyse the co-emergence of meaning and subjectivity.

In order to analyse young people's games, I draw on two theoretical frameworks. Social semiotics provides a methodology for analyzing games as semiotic objects, as well as a theory which accounts for the social and material in terms of the semiotic. Butler's notion of performativity enables me to treat this semiotic analysis in terms of the production of subjectivity. In order to align both theoretical frameworks, I develop a concept of motive, which names the generative principle of semiotic production. This is the subject of Chapter 2.

In reviewing the literature on games and learning, I identify three problems which this thesis aims to address: (1) the distinction between form and content (a distinction which can be traced to the form/matter dichotomy in Platonic philosophy), (2) the equivalence established between subjectivity and the individual mind, and (3) the lack of theoretical clarity about 'what is produced' when young people make games. Each of these will be the focus of one empirical chapter, in that order.

CHAPTER 2

'MOTIVE' AS A LYNCHPIN BETWEEN SOCIAL AND SEMIOTIC THEORY

This chapter describes the concept of motive, which in this thesis names the social purpose which students have in designing games. In Chapter 1, I argued that meaning is a function of the sign-maker's effort to achieve subjectivity within context, with context defined in part in terms of the availability of semiotic resources. In this chapter, I theorise this process in greater detail, in order to inform the empirical analysis of young people's games and the social functions they served in the sites of research, using a range of semiotic resources.

The concept of motive is based on the assumption that students made choices about how to configure the resources available to them to make a game; they configured them in some ways and not others. Resources included the authoring software, other kinds of digital objects which could be integrated with it, and more generally, resources available in the site of production. Motive describes that which guided the process of selection. The purpose of developing a concept of motive is to understand how students make meaning through the process of game design, why they made particular meanings and not others, and how the production of meaning relates to the resources available in the different sites of production.

Analysing motive involves bringing both semiotic and social theory to bear. Semiotic theory provides a method for describing how meaning is made. Social theory provides an analytical strategy for treating such descriptions in particular ways epistemologically. Here, social theory is used to treat descriptions of meaning-making processes as pertaining to the analysis of subjectivity. The concept of motive can, through the conjunction of semiotic and social frameworks, be used to make observations about the strategies pursued by students in designing their games in particular ways, and concurrently, in positioning themselves in relation to others.

This chapter situates the concept of motive in relation to others used throughout the thesis, such as sign, context, power, and desire. It also begins to discuss the status of its own knowledge claims, a topic which will be discussed more thoroughly in chapter 3.

In Section 1, I discuss the function which a concept of motive has in analysing the production of meaning. By comparing it with the concept of 'interest', which performs a similar role in the work of Bourdieu and Kress, I outline the scope of the concept in social and semiotic theories, and clarify the reasons for choosing a different term. In Section 2, I define motive from a social semiotic perspective, defining it in relation to sign, grammar, and context. I then describe how multimodality theory can be used to analyse motive in relation to semiotic resource as well as discourse. By drawing on Kress' definition of learning as semiotic production, I make a case for theorising motive to understand learning. Section 3 describes motive from a social theory perspective, notably through the work of Butler. I discuss how Butler re-works Austin and Foucault and the way in which this can inform a concept of motive. Section 4 clarifies differences and similarities between Kress' semiotic theory and Butler's theory of subjectivity and the function which each framework has in the thesis.

Section 1: The role of a concept of motive in studying meaning-making

Motive and motivated sign-making

The term motive stems from the argument in social semiotics that signs are motivated (Hodge & Kress 1988; Kress 2003a). This counters the view, associated with Saussure's (1974) work, that the sign's double articulation is arbitrary and conventional. It is said to be arbitrary because the relation between signifier and

signified, or form and meaning, has no necessary justification[1]. It is said to be arbitrary *and* conventional in order to describe the way signs are meaningful whilst excluding from the purview of semiotics the evolutions or reasons for such conventions. To argue that signs are motivated is to state that the conjunction of form and meaning is conventional but not arbitrary; conventions are made and maintained, for specific reasons. The justification for such conventions is not to be found in the realm of logic (in which they appear arbitrary) but through consideration of the elements involved in the production, maintenance and transformation of such conventions. As a consequence, the sign, as an object of study, should not be defined in terms of its internal relations, since such relations are externally justified. To state that signs are motivated is thus to offer an ontology of the sign based on historical processes. It is also to put forward an epistemology in which signs can only be known through their uses in such processes. Redefining the object of study changes the purview of semiotics: studying signs means studying their evolution in history and the role they play in historical processes.

The study of motive is thus the study of the relation between form and meaning, signifier and signified. Motive names that relation. This relation is identified in texts – by text, I mean some kind of unit of meaning, that which in more linguistically-oriented theories is referred to as statement, utterance, or énoncé. Motive is therefore the justification for the conjunction of signifier and signified in a text. Although a signifier is often equated with 'word' as a component of text, social semiotics and multimodality theory define signifier relationally rather than substantively. A signifier is anything that signifies – it is a type of function rather than an essence, a name given to an object in order to examine it analytically rather than a description of an intrinsic characteristic quality. Motive therefore is the justification for a relation between two functions (form and meaning) rather than between two substances.

---

[1] This is the basis of the distinction between form and content discussed in Chapter 1, in relation to literature on games and learning

The rationale for using the term motive in this thesis is to marry two bodies of theory, one pertaining to the study of signs and the other to the study of subjectivity. The concept of motive is designed to enable the formulation of the research question: 'what does the conjunction of signifier and signified in this text tell us about the subjectivity of its author?', a reformulation of my research question set out in Chapter 1 in the terms provided by semiotic and social theory. This means that, in this study, motive is used to analyse textual production and ascribe it to an individual on the basis of text being a manifestation of subjectivity. Motive is not an equivalent term for subjectivity but the realisation of subjectivity in (or, more precisely, with) text. This presupposes a model of subjectivity which is realised in historical processes and is known through its evolution in such processes. The reason subjectivity is of interest to semiotics is that it offers a theoretical framework for conceptualising the justification for textual production at the level of the individual.

The problems of analysing meaning-making without a concept of motive and motivated signs

A Saussurean model of meaning-making

The model of linguistics associated with Saussure aims to describe the laws of language which enable communication. Saussure divides language into two components. 'Parole' is the individual speech act; that which is spoken in the real world. 'Langue' is the socially conventionalised system of forms; the abstract system of grammatical, phonetical and lexical rules which underpin the variability of everyday speech. For Saussure, 'parole' cannot be studied systematically because of its heterogeneity. 'Langue' is thus the proper object of study, with 'parole' understood as the mere application of its laws. This is a geological model of communication, with surface features (communication in its material form) framed as incidental manifestations of deeper, platonic forms.

A concept of motive is not relevant to this theory since motive pertains to 'parole' – signs made at the level of utterance. Producing specific utterances, within a Saussurean framework, is a consequence of the speaker's intention – the speaker selects signifiers to represent a signified. Meaning resides in the mind of the speaker independently of signification, with signifiers as the vehicle (form) to carry a pre-determined meaning. Communication is possible because both speaker and listener share the same system of laws. Meaning here then precedes sign-making, as does motive; motive and sign-making are two independent processes (formulating intentions and formulating their expression)[2].

There are two kinds of problems with this theory. The first is logical. Within a Saussurean framework, emphasis is placed on the study of language as a system of forms, rather than to language as a system of social meanings. This overlooks the fact that the common element between these forms is that they have meaning; the principle of a form's recognisability is indissoluble from what constitutes its meaning. What makes a sign (of anything) is not therefore a self-identical form but the conjunction of form and meaning across different instances of communication. However, the system of forms does not exist for the individual speaker (by Saussure's own definition). The speaker does not therefore communicate by understanding forms but by producing meanings and conjoining form and meaning in a way appropriate to a context (since a linguistic form can have different meanings in different contexts). This means that the basic unit of analysis is not the word (as form), therefore, but meaning, produced by individuals in context. Language is not a system of forms therefore but a specific kind of variability – meaning across contexts, meaning made anew in each context.

The second problem follows from the first but is more methodological, concerning what Saussurean linguistics cannot account for. It cannot account for variations in language, across time and space. Since there is no connection between language as a system of forms and language as a historical phenomenon, the current state of

---

[2] This is the theory of meaning underpinning Kafai's work, discussed in Chapter 1

language is understood to be independent of its evolution. There is no way to describe why some signifiers are associated with some signifieds. This separates linguistic forms from their affective, evaluative functions. Yet signs not only have meanings but express values. In Barthes' work (1957), this is separated out and conceptualised as connotation, or figurative as opposed to literal meaning. If there was scope for a concept of motive, this is where space could be made for it, with respect to connotation, but not denotation. But signs do not have literal and figurative meanings independently of each other. It is precisely the figurative aspect of language which determines the choice of a particular referential denotation. Distinguishing between the two leads to methodological difficulties in defining what it is one is describing in each case and which should take precedence (Barthes' analysis of the image of the French black soldier standing beside a lion in his essay 'myth today' offers a good example of this).

Although Saussure was not concerned with matters of meaning, the model of language his work elaborates has implications for theorising learning. In defining language in terms of norms, it splits language users into those that master such norms and those that do not. Those that do not can only be accounted for in terms of having failed to master such norms. Those that do are assumed to have acquired an abstract system which is distinct from their personal experience. This supposes that 'what is to be learned' has a fixed and stable order which can be reconstituted irrespective of context. Emphasis is consequently placed on its form (content and pedagogy, defined in terms of how best to present content) rather than the meaning these have to learners, or the meanings which learners produce which do not conform to such norms – in other words, what people do with such content. The weakness of this model of learning is that it creates a problematic category (failure to master norms) whilst offering few explanations or solutions, precisely because it excludes difference between learners from its model. The category may be described in terms of cognitive disability or made acceptable by stating that people have different cognitive abilities or learning styles, but this is not so much an explanation as a re-statement of the problem (as defined by the argument's premises). Attention

cannot be given to learning as a process which takes place in specific and variable times and places, with people with different histories, or to the different meanings which such situatedness may have for content and pedagogy.

An 'individually subjective' model of meaning-making

It is worth mentioning an alternative approach to the study of signs in the philosophy of language, discussed in Vološinov (1973), and whose tenets appear to re-emerge in certain approaches to arts education, media production and creative writing in schools (Abbs 2003; Buckingham *et al* 1995; Moss 1989). In developing a Marxist philosophy of language, Vološinov (part II chapter 1) critiques two trends predominant at the time (1929, when the work was first published): abstract objectivism, which he associated with the work of Saussure, and 'individualistic subjectivism', whose most important representative was Wilhelm von Humboldt[3]. In the second tradition, the basis of language is the individual creative act of speech. The source of language is the individual psyche, so that language is created on a voluntaristic basis. Differences between languages are the outward objectifications of ethnic or national psychologies[4]. The generative principle of meaning-making here is the individual's (ethnic) psychology: it is not signs which are motivated, but rather psyches. From such a perspective, signs or utterances are expressive; they externalise something which takes shape prior to, and has a different form to, materialised expression.

Abbs (2003) notes that in arts education in schools, there has often been an emphasis on 'self-expression', which eclipses a notion of the arts as symbolic orders, in which representation is understood to consist of culturally-shaped conventions. Valuing self-expression – the outward manifestation of inner states – above knowledge of, and recreation of, such conventions, he argues, empties students' work of social, historical or political significance. Moss (1989) similarly argues against a view of

---

[3] Vološinov emphasizes that these terms do not fully cover the breadth and complexity of the traditions denoted, particularly with respect to the second tradition, where connections to Humboldt's work gradually become very slight

[4] Here Vološinov (1973: 50) refers to the work of Wundt and his followers

creative writing as the direct statement of the self, which grows naturally out of experience. This idea is encapsulated in the belief that it is powerful experiences that generate good writing, a view which locates the organising and formative principle of meaning-making in individual experience rather than its expression. Moss states however that learning to write a personal journal, for example, is not a matter of being a sensitive individual but knowing the way a particular genre is structured. In reviewing different rationales for media production in schools, Buckingham *et al* (1995) indicate that practical work is often justified in terms of allowing young people to explore their interest in the media; although this acknowledges the validity of young people's beliefs and ideas, it assumes that students are inherently able to express themselves through different media genres. Media production, from such a perspective, is the voluntaristic manifestation of young people's 'authentic' culture; it is expressive, rather than determined by the material, semiotic conditions of production.

Tenets of the 'individualistic subjective' model of meaning-making are recognizable in Abbs', Moss' and Buckingham *et al*'s critiques of certain approaches to creative, aesthetic practices in schools, including media production in English and Media Studies classes. The problem of such a model is that it locates 'the psyche' or 'the natural self' outside embodiment in some particular material, outside its concrete, social manifestation. As a consequence, it creates an abstraction which is theorized as distinct from the principle of its recognition. Although it acknowledges differences between 'psychologies', it does not account for how such differences come to be constituted; the attribution of 'motive' to individual psychology, rather than signs, means that personal expression is of a different order to social experience. As a consequence, it offers no account of *why* people produce particular and different meanings – only note that they do and re-state this through recourse to the concept of 'expression'.

These two models of language are representative of a debate between two broad, and internally diverse, trends within the philosophy of language, which has continued beyond Vološinov's analysis of it (see for example Losonsky 2006 for an updated review of such trends). From the perspective of both trends, the relationship between sign-makers and sign-making is not a central consideration, because it tends to be conceptualised in terms of pre-linguistic intention or individualistic expression.

Alternatives have been proposed by theorists who do not presuppose a specific ontology for language, in other words, who do not establish a strong dividing line between the discursive and the non-discursive. These tend to view signs as material entities or forces, components of systems which also involve institutions, social practices and embodied ways of seeing the world. From this perspective, signs are not analytically separable from their material articulation, a view which belies the idea that signs are an a priori system of either universal or conventionalised but arbitrary forms. However signs cannot be understood through phenomenological observation of 'expression' alone, since they also work across contexts and are constitutive, as material entities, of such contexts.

Two such theorists have developed concepts pertaining to the conjunction of form and meaning at the level of utterance, both of whom describe this in terms of 'interest'. The first of these is Bourdieu (1990, 1991, 1992), whose theory of field and habitus offers a way of studying the individual in relation to the social and conventional. The second is Kress (1997, 2003a, 2005a), whose semiotic theory focuses on the transformation of the socially conventional in every act of meaning-making.

Bourdieu's concept of interest

Bourdieu (1991) conceptualises the utterance as a practical action with a certain value in a linguistic market; sign-making is a material practice, akin to other social

practices. The relation between form and meaning should thus be conceptualised as a product of power relations, not abstract formal systems. From this perspective, the object of analysis in understanding sign-making is the linguistic field, constituted by relations of force between groups of individuals who seek to maintain or alter the distribution of linguistic capital. Utterances are symbolic goods, whose exchange value is set by the terms of the marketplace: "grammar only partially defines meaning; it is within the relations operated by a market that the meaning of a discourse is fully determined" (Bourdieu 2001: 60[5]). Agents exchange utterances on the basis of their 'interest' within the marketplace. This means that although agents have different interests, they all share the same presupposition – a belief in the value over which they are struggling. This is what enables a common struggle over symbolic power.

Bourdieu (in Bourdieu & Wacquant 1992) develops the concept of interest, and the related terms 'investment' and 'strategy', to counter utilitarian economic theory and its rationalist view of human action, and emphasise that agents are the product of their social history: [Rational choice theory] "ignores the individual and collective history of agents through which the structures of preference that inhabit them are constituted in a complex temporal dialectic with the objective structures that produced them and which they tend to reproduce" (: 123). Interest is specific to a field (the 'objective structures' referred to above) but realised as an attribute of the habitus, defined as a set of dispositions, historically shaped, which incline people to act in particular ways. The concept of the habitus is developed to escape "both the objectivism of action understood as mechanical reaction 'without an agent' and the subjectivism which portrays action as the deliberate pursuit of a conscious intention, the free project of a conscience positing its own ends and maximising its utility through rational computation" (: 121).

---

[5] My translation – the quote is taken from the introduction to Part 1 of *Language and Symbolic Power* (French edition, entitled *Langage et pouvoir symbolique*), originally written in 1982 for the book entitled *Ce que parler veut dire*

There are a number of problems with this concept of interest. The first relates to how interest is formulated or recognised by an agent. This is where Bourdieu divides interest into two kinds. There are interests which are 'chosen' and there are interests which are 'below the level of consciousness'. In the case of the latter, "the agent does what he or she 'has to do' without posing it explicitly as a goal, below the level of calculation or even consciousness, beneath discourse and representation" (Bourdieu & Wacquant 1992: 126). This is because agents have an "ontological complicity" (: 126) with the field in which they are acting; they act according to its rules which precede the agent and which can therefore be defined independently of her. So although Bourdieu rejects Saussure's distinction between norms and their (ungrammatical) variations, he conceptualises both norms and their variations to supersede individual consciousness. It is unclear, as a result, on what basis 'choice' can be exercised.

One cannot deny that semiotic conventions are collective and by definition therefore beyond the level of any one individual. However, Bourdieu's definition suggests that fields, including the linguistic field, are of a different order to individual utterances, and act independently of them. Not only does this raise a question about how fields come to be constituted, it also leads Bourdieu to make a distinction between actions (including utterances) which work according to the relations characteristic of a field, and actions which do not: "[Subjects] can deliberately let them [their dispositions] 'act' or they can on the contrary inhabit them by virtue of consciousness" (Bourdieu & Wacquant 1992: 137). This posits the unconscious as something one deliberately chooses not to be conscious about, which is not very convincing as a definition of the unconscious. Bourdieu here seems to wrestle with a number of dualisms – individual vs social; unconscious vs conscious; field vs habitus; choice versus determinism – which he defines in opposition to each other whilst cancelling out the analytic value of one of the terms (the individual, the unconscious, the habitus - which in effect is simply the difference between fields -, and choice).

The second problem with Bourdieu's concept of interest follows from the first but relates to his conception of temporality. Bourdieu (Bourdieu & Wacquant 1992: 136) develops the notion of interest to argue against accusations of determinism: "Social agents will actively determine, on the basis of these socially and historically constituted categories of perception and appreciation [i.e. habitus], the situation that determines them. One can even say that social agents are determined only to the extent that they determine themselves. But the categories of perception and appreciation which provide the principles of this self-determination [i.e. interest] are themselves largely determined by the social and economic conditions of their constitution". Interest is determined by the historical conditions of its constitution, as is the agent. Although this argument counters rational choice theory, it forces an ontological distinction between past and present. The past is given; it is a set of conditions. The present and the future however are potentials, allowing the agent to determine which potential to realise. This raises a question about how a potential (the future) can emerge from a non-potential (the past) – if the past 'determines' the present, why does it not also determine the future? This problem arises in Bourdieu because he removes 'meaning' as a useful and valid term from his analysis; people do not make meanings as such, they gain or expend capital. Capital is given (it is a fixed exchange value), it cannot be subject to interpretation. By extension, the past (from which one's capital emerges) is also given; it dictates its own significance in terms of capital. The past is an objective condition, which somehow leads to a subjectivised present (in which the agent has to determine themselves). This argument is not opposite to determinism; it introduces the notion of 'generative' rather than deterministic structures, whilst denying the basis on which 'generation' might take place. The only way to argue that agents are in a position to have choices about their future is to argue that they also have choices over their past. It follows that the past should not be defined in terms of a 'condition', but conceptualised as a resource which is continuously constructed and re-made. Such a conception of the past is of course the basis on which history exists as a discipline. The past does not exist as brute materiality; it is something made and re-made meaningful in the present. This raises a question about whether the analogy with 'capital', and the

interest which such capital determines, works as a way of understanding the differential conditions under which agents act.

Kress' concept of interest

Kress (1997) defines a concept of 'interest' to counter theories of meaning-making based on Saussurean linguistics. The concept involves changing the perspective from which meaning-making is perceived and evaluated. Within traditional linguistic frameworks, sign-making is analysed in terms of the conventions which it manifests or fails to manifest, with such conventions perceived to stand independently and prior to the process of sign-making. Kress argues that sign-making should be analysed in terms of the interest which causes conventions to be re-iterated in sign-making. Interest is an attribute of the sign-maker, defined as a socially-situated and culturally formed subject (a subject might be an individual, an institution or some other kind of collective, but it is that which is theorised as producing a sign). Interest can be described as the outcome of the relation between the sign-maker, and that aspect of the world which is symbolised; it is an expression of the sign-maker's perspective, judgement, experience and social purpose in making a sign.

The concept of interest in Kress' work is based on a number of arguments. Signs are selections of aspects of the world, rather than symbolic equivalents of material reality; people always represent something in a particular way, for a particular group of people: "interest guides the selection of what is seen as the criterial aspects of the object, and this criterial aspect is then regarded as adequately or sufficiently representative of the object in the given context" (Kress & van Leeuwen 1996: 6). This means that signs are *made* rather than *used*. It follows that signs are re-made with every act of sign-making rather than defined in terms of pre-established conjunctions of signifier and signified. Selections are made according to certain principles, such as belief about what counts as a convincing symbolisation of an object in a situation. This means that signs are constitutive of social relations; in making them, we situate ourselves in relation to others. The selection from which a

choice can be made relates to existing semiotic conventions as experienced by the sign-maker, as well as available material resources for making a sign at a particular point in time; such resources might include writing, speech, gesture, visual images and so on. This breaks down the distinction between sign-making and meaning-making. Signs are anything which are made to mean, and they are made to mean as a consequence of the meaning-maker's interest (as shaped by their history). In other words, meaning is not formulated prior to sign-making (as Saussure argued), but through the making of signs.

Kress' concept of interest is different from Bourdieu's in several ways. Firstly, it does not make a distinction between objective and subjective interest. In Kress' work, signs are conventionalised but such conventions are always subjectively re-made. Conventions are identified in order to analyse how they are re-made rather than to abstract them from this process. In other words, the focus is on the process of meaning-making rather than on the pre-supposition of an objective meaning. Second, Kress' definition of interest means that it is not an internally divided concept, split between conscious and unconscious. Meaning-making practices do not have logics, which function independently of individual willing – such an argument supposes an analytic distinction between the social and the individual, with the social of a different order to the individual. Third, interest is made at a particular time and place, rather than defined as a general condition determined by the past. Interest relates to available semiotic resources as well as to the sign-maker's subjective experience. This experience is not simply a cumulative condition, but matter which is continuously re-symbolised (re-made meaningful). The subject's interest is thus not the sum total of their history but the principle by which such a history is understood at a particular point in time.

However, Bourdieu and Kress share much common ground. Both understand meaning-making as a practice, which shapes the social world rather than simply reflects it. Conventions are enforced by power rather than abstract systems; statements have different values in different contexts, which is why speakers

produce signs on the basis of contextual arrangements rather than simply as a reflection of their understanding of semiotic forms. The basis on which selections can be made (what Bourdieu might refer to as linguistic capital) should be understood in terms of the unequal distribution of social experiences, rather than described in terms of cognitive ability.

'Motive' and 'interest' – parallels and differences

The concept of motive in this thesis borrows from Kress' concept of interest. The justification for a different term is three-fold. First, to distinguish between what might be termed broadly economic interest (as in Bourdieu) and interest in sign-making. The two are clearly not unrelated, but the latter is not reducible to the former.

Second, the term interest is suggestive of something which is fully known, deliberate and exercised with intent. As a consequence, it tends to force a distinction between conscious interest and unconscious acts, or meanings which are produced sub- or unconsciously, or meanings which are made but not really meant. This distinction is not satisfactory since it suggests there are meanings we do control and meanings we do not, without providing credible ways of distinguishing between the two. The term motive is in part intended to break down the distinction and provide a framework within which theories of the social and theories of individual consciousness can be understood in parallel, rather than in opposition.

Third, Kress develops the concept of interest to explain semiotic production, and describes the genesis of interest in terms of the internalisation and integration of meanings. It is however not within the purview of social semiotics to conceptualise interest as a dimension of subjectivity, or to theorise subjectivity and interest in relation to each other. This leaves open the question of how sign-makers come to know their own interest. The term motive is a methodological device intended to bridge semiotic and social theory, and notably social theory on the development of subjectivity. If motive is that which produces subjectivity, the term 'interest' does

not seem quite strong enough, redolent as it is of choice and fancy; motive, with its overtones of passionate compulsion, emphasises that it is not something we take or leave, but a necessity, without which social existence is not possible.

Section 2: Locating motive within a social semiotic framework

Before examining theories of subjectivity, I will situate Kress' concept of interest – and what I am calling motive - within the broader framework of social semiotics and multimodality theory.

A definition of sign

The argument that the conjunction of signified and signifier is motivated emphasises that the sign is not a reflection but a constituent of reality and our understanding of it (Halliday 1978; and with Martin 1994). Signs, as shared social resources, do not simply express a society's view of reality but symbolise and therefore create it. It follows that signs do not have one single referent but are meaningful in relation to a system of concepts which is rooted in social practices or, in Wittgenstein's (1967) phrase, 'forms of life'. Forms of life are historical and variable. This means that a sign is not recognisable by the stability of the relationship between signifier and signified, but by the productivity or effect of this relationship in time and space.

This definition challenges the view that a sign is a representation, in the sense of a second presentation which stands in for, is subservient to, and exists as prior to, the first. Such a view of semiotics tends to divide the world into true and false representations. If signs are treated as material forces with which we construct (a view of) the world, they are no longer 'representative', that is, separate from the things and states of things they articulate. Instead, they intervene among them. This argument underlines the materiality of the signifier; portraying the signifier as a material entity undermines the logic by which entities are classified as *either* material *or* semiotic, a dichotomy which positions materialism and idealism as its

two poles[6]. This view is also comparable to Stables' definition of sign as primary, discussed in Chapter 1.

In this study, the students' games are not understood as representations of something outside and independent of the games themselves, such as students' socio-economic status or cognitive ability. Rather, they are ways of forging social relations and concepts.

A definition of context

Work which uses or shares principles with social semiotics is likely to use terms to describe the way in which meaning cannot be abstracted from its point of emergence: '*situated* literacies: reading and writing in *context*' (Barton *et al* 2000); '*situated* language and learning' (Gee 2004); '*Situated* learning: legitimate peripheral participation' (Lave & Wenger 1991); '*Situated* cognition: social, semiotic, and psychological perspectives' (Kirshner & Whitson 1997). To analyse meaning-making in context involves defining how one is to identify a context, or in the case of 'situated', a situation or site.

Halliday (1978) theorises context as a conventionalised social situation, which involves a field of social processes, a tenor of social relations (who is taking part), and a mode of symbolic interaction (how meanings are exchanged). Context is a set of potentials defined in terms of these categories. To describe context as conventionalised means that certain conjunctions of processes, relations and mode appear more often than others. To describe context as a situation means that such conjunctions are not simply backdrops for meaning-making but are produced by meaning-making practices. Context is not to be described prior to meaning-making therefore; the two are mutually determining. Motives do not simply emerge *in*

[6] It is on the basis of such a dichotomy that 'the problem' of the relationship between the discursive and the non-discursive arises. This suggests that the issue of how to understand the interaction between meaning and materiality should not be formulated in terms of 'the relationship between materiality and the signifier', given that the signifier is also material

context but also serve to shape context. This definition of context avoids defining context and meaning independently from each other, as does Bourdieu in distinguishing between field and habitus. It comes close to the concept of 'network' in Latour's (1991) work on actor-network theory, which emphasises that any individual social action changes the whole chain of actions of which it is a part.

In chapter 5, I compare games made in three sites of production: a classroom, an after-school club and students' homes. My focus is on the way in which students organise their games to fulfil social functions within these sites. I conceptualise these sites as contexts because they are historical and are characterised by processes, relations and modes which are conventionalised. I understand the process of game-making to be shaped by these (but not as a reflection of these); students' games re-actualise processes and relations, and in so doing, also transform them. It follows that the process of making games also re-shapes the context in which it takes place.

Multimodality and social semiotics

If we accept that signs are not independent of social processes but constitutive of them, then it follows that verbal language is not the only sign system. Gesture, image, movement, non-verbal sound – any and all of these forms of materiality can be part of a social process. To state that language is not the only sign system is not to say that there are different kinds of sign systems, but to make the point that language itself should be treated differently. Multimodality necessitates a different conception of the sign and semiotics, not an extension of linguistics into other sign systems. Most importantly, it emphasises that signs are ontologically heterogeneous (rather than sharing a common form) and on the same plane of immanence as other material entities (rather than representative of them or dominating them).

With multimodality theory (Kress & van Leeuwen 2001; Jewitt & Kress 2003), motive can be analysed in relation to mode, which refers to the kind of culturally-shaped materiality used in the production of sign. One can say or think different

things depending on whether a concept is developed with words, images or music. Modes have values attached to them which differ by social processes and relations; in schools, for example, verbal language is usually treated as the pre-dominant form of materiality. This means that motive relates not only to meaning-making as practice, but also, more specifically, mode as materiality. In analysing students' games, for example, the form of materiality employed in production processes is treated as significant; writing a message on screen is not of equal significance to recording an audio file or incorporating an image.

Transformation and a social semiotic definition of learning

The argument that signs are made rather than used implies that signs are always made anew (Kress 1997, 2003a, 2005a, 2005b). This means, on the one hand, that signs are never simply copied, imitated, reproduced or acquired; and, on the other hand, that they never simply appear arbitrarily, out of nothing. To say that signs are never reproduced means that the same sign is never encountered twice; although we may make the same statement many times, for example, we do so at a different moment in time and therefore in a different situation (what may described colloquially as the same situation is, by definition, always another situation from the first, second, and so on). If situation is constitutive of meaning, it follows that meaning cannot be repeated. To say that signs are not arbitrary is to say that they have a history and an evolution. Meaning is produced as a result of a variation on what has been before.

This argument, initially discussed in Voloshinov (1973), is designed to refute two others. One, that society or culture is 'reproduced'. Conventions and social norms are re-made, which means they are re-made for a reason, rather than because of some autonomous power of persistence. Two, that society or culture can be subverted or replaced with something 'original', 'radical', with no antecedents; social norms change, they are not created.

Kress develops this idea of variability through the concept of transformation. His argument focuses on the subject which produces such variation, the individual, and explores the implications of understanding individuals as differentially constituted in their own social histories as well as their position in space at any one time. Individuals transform signs by signifying their social experience in particular or partial ways, as a function of their stance on such an experience in a particular time in space. This means that transformation is neither spontaneous nor arbitrary; it works on the semiotic resources available to the individual (as a result of their history and situation) and is directed by their interest. In transforming signs, individuals reconstitute the semiotic resources available to them, and to society more broadly – each statement constitutes a further resource for oneself or others to transform. It is this process of transformation guided by interest which Kress refers to as design. I draw on this concept in Chapter 6, in order to conceptualise 'what is produced' when students make their own games.

Kress' definition of learning is based on the concept of transformation. In making-meaning, subjects transform their internalised set of resources, placing and valuing re-designed semiotic resources in relation to their existing stock. This process can be defined as learning, from a semiotic perspective:

> *All signs are always metaphors which embody the interest of the maker of the sign. Given the principle that signs are and function as concepts, we can say that concepts are the result of the work of the sign-maker, and represent his/her interest in relation to the world which is in focus. As a consequence, the semiotic as much as the conceptual resources of the individual are the result of their work in their engagement with their (social and cultural) world. [...] As a result of this process of engagement a new 'concept' is made, and it, in its making, is integrated into the inner set of conceptual resources. The entire set of resources is transformed in that process, and learning has taken place. That (serial) process of*

> *transformative engagement, integration and inner transformation, together with its resultant state, constitutes learning.* (2005a)

The concept of transformation[7] implies a particular view of time, or semiotic genealogy. If transformation involves the 'entire set of resources', it follows that it is not only the subject's future resources which are transformed but also their past resources; in other words, the subject's history is not given but actively and continuously reconstructed, in line with their interest and on the basis of available resources. One outcome of this definition of learning is that it provides a more satisfying explanation of forgetting than is provided by either psychoanalysis (Freud's *Introduction to Psychoanalysis* describes a failure of memory as repression) or certain learning theories which assign problems of retention to cognitive styles of learning, such as the opposition of deep and surface learning (as summarised on the HEA web site[8]): the reason I can no longer do long divisions is not because I have repressed this ability or only ever learned it at a surface level, but that I have no reason for doing them. This also reconfigures the issue of 'learning styles' from one situated in cognitive structures to one pertaining to social interest.

Where semiotic theory stops and social theory starts

Kress' focus is on the consequences of developing a concept of interest to explain semiotic production rather than the genesis of interest. In order to examine the emergence of interest in particular and different contexts, a concept of subjectivity is

---

[7] With respect to the concept of transformation in Kress' work, there is an analogy here with concepts of matter and 'object' in Marx's critique of Feuerbach, in which matter is understood precisely in terms of transformative temporality: "The chief defect of all hitherto existing materialism (that of Feuerbach included) is that the thing, reality, sensuousness, is conceived only in the form of the object or of contemplation, but not as sensuous human activity, practice, not subjectively. Hence in contradistinction to materialism, the active side was developed abstractly by idealism – which of course does not know real, sensuous activity as such" (Marx 2000: 170). 'Sensuous activity' here constitutes the very matter of objects (e.g. materialized signs); transformation in time is thus constitutive of materiality itself. Butler's (1993: 250) commentary on Marx's theses notes: "According to this new kind of materialism that Marx proposes, the object is not only transformed, but in some significant sense, the object *is* transformative activity itself [...] the materiality of objects, then, is in no sense, static, spatial or given, but is constituted in and as transformative activity"

[8] http://www.engsc.ac.uk/er/theory/learning.asp

required which theorises the mechanisms by which interest emerges. For the purposes of this study, Kress' definition of interest and social semiotics' concept of motivated sign-making allow me to carry out detailed semiotic analysis of young people's games and describe this in terms of the production of social relations, enabling me to relate the games' structure to the social and institutional characteristics of the context in which they were produced, including its relations of power. What social semiotics does not do is theorise the production of interest. Combining a theory of meaning-making with a theory of subjectivity has several benefits. First, it allows for a re-thinking of the relationship between materiality and semiosis, reality and meaning, or in terms of theoretical traditions, materialism and idealism. Second, it clarifies the terms by which will is exercised. If we understand sign-making as motivated by the interests of the sign-maker, what are the conditions by which authorship takes place? What is the relationship between the possibility to make meaning and conventions of communicability, or discourses?

It is in addressing these questions that Butler's work (1993, 1997, 1999a, 1999b, 2000, 2004, and with Laclau & Zizek 2000) proves useful, in that it develops a theoretical framework by which to conceptualise subjectivity in relation to meaning. I will now draw on certain arguments in her work to clarify the processes by which motive arises.

Section 3: Locating motive within a theory of subjectivity

Judith Butler is a constructivist, which means that she is interested in how concepts and ideas emerge and evolve historically (Andersen 2003). This has implications for how research questions are formulated. Rather than ask 'what do women want', for example, she asks how and for what purposes do people classify interests and actions (including their own) as distinctively female. Rather than assume that the categories 'male' and 'female', and one might add 'I', 'you' or 'we', are fixed and known variables, she asks how such concepts are validated over time.

This has implications for how identity is researched. Although identity is often said to be something people are born with or socialized into at an early age, Butler's work raises the question of how people come to know their own and other people's identity. Her answer is that it is through the production of meaning, not only in relation to language but any resource for producing meaning. This has three consequences. First, identity is never settled, but something which is worked at continuously, since meaning is produced continuously. For this reason, Butler uses the term subjectivity rather than identity, as her work describes a process of becoming rather than a state. Second, subjectivity is something people construct for themselves. Third, the terms by which subjectivity is produced are social and intersubjective. As a result, one determines one's subjectivity to the extent that social resources exist that enable particular subjectivities.

To argue that subjectivity is produced as an *effect* of making meaning has implications for a concept of motive. It suggests that people produce meaning in order to achieve a particular subjectivity; motive can consequently be described as the compulsion / desire to become a certain kind of subject. It also makes clear that motive is not a stable commitment, but something which precedes and is also transformed by making meaning / claiming a subjectivity. Finally, it indicates that the terms according to which motive are formulated are social, insofar as subjectivity is always a social subjectivity, a position within a social group. This conception of subjectivity contrasts with Stables' notion of individuality, described in Chapter 1, and means that individuality is defined as a consequence of collectivity, rather than as its starting point.

Performativity: how Butler transforms Austin

Central to Butler's work is the concept of performativity, which describes how subjectivity is an effect rather than solely a cause of making meaning. Butler takes the term from Austin, whose book *How to do Things with Words* (1962), describes the concept of speech-acts: by saying something, we make it so. Austin defined

performativity as the power of statements to bring into effect what they state or describe, as in 'I pronounce you man and wife' or 'I condemn you to seven years hard labour'. In Austin, speech does do not bring about materialisation alone but in conjunction with felicitous social conditions; for example, performative statements have to be pronounced by an official language user, such as a priest or judge, and be part of formal procedures.

Butler transforms Austin's concept in several ways. First, she argues that performativity is not particular to certain statements but a general characteristic of all statements. Signs do not just describe, but make the world intelligible, by framing and forming it through differential categories rooted in social and institutional norms.

Second, performatives are not statements used by a pre-given subject to implement already-authorised effects, but a way for people to be called into social existence and to situate themselves in relation to others. In other words, it is only in making particular kinds of statements that people's institutional or social positions are brought into effect. This challenges the methodological individualism of Austin, by making clear that the subject does not precede the statement but is recognised as a subject in making the statement.

Third, Butler breaks down the distinction which Austin established between illocutionary and perlocutionary speech acts, to separate performatives which take effect at the moment of utterance from those which take effect some time after. Following Derrida's critique of Austin (Deutsher 2005), Butler (1997) demonstrates the incoherence of the concept of illocutionary speech acts, arguing that any performative relies on forms of ritual and convention whose necessarily prior status undoes the idea of a single, self-contained moment of performativity. For Butler, statements and their effect cannot be conflated. Signs do not take effect only at the moment of being made, but rely for their meaning and social productivity on structures which predate and outlast them. If signs are productive resources, which bring material bodies into social existence, then context cannot be defined as a

singular point along temporal and spatial axes. Butler's argument clarifies the ways in which context serves as a productive resource in achieving material effects rather than just as a temporal and spatial backdrop. Context is not one point in time, but a condensation of historical occasions which relies on social subjects for its re-articulation. This tallies with Halliday's definition of context, and implies a view of culture as conventionalised but never self-identical (reproduced) across time or space.

One of the benefits of this concept of performativity is that it offers an alternative to two other notions of how subjectivity and meaning-making relate. First, Austin's notion that subjectivity precedes meaning-making. Second, Althusser's notion that subjectivity is achieved in acts of meaning-making. If we take Althusser's (1977) exemplary interpellatory situation of the policeman hailing the subject with the call "hey, you!", we can draw on the concept of performativity to point out that: (1) the call is only effective in that we know and recognise it from other situations, (2) the call is effective not at the level of two individual interacting, but two institutional representatives, the arm of the law and the citizen under its jurisdiction, (3) the arm of the law is effective as an instrument of social regulation precisely in making such statements and compelling their collective recognition, (4) this collective recognition does not however need to include everyone to be effective – it could also have effect were the subject not to turn around and recognise the jurisdiction, and (5) the necessity of making the call means that the authority of the law is not simply accepted or fully internalised.

This reworking of interpellation suggests that it is not constant or constitutive, but takes place continuously, in a multiplicity of contexts, through the capillary distribution of power, but that this power is precisely never fully totalised – subjectivity is not established but striven for. More pointedly, it suggests that interpellation always fails, and that it is because of this that meaning is continuously made. Motive arises precisely because interpellation fails; subjectivity is sought after, not imposed or found. It is in this respect that Butler (2004: 120) highlights the

difference between her approach and that of Bourdieu's, who, she argues, focuses on the social and the linguistic but not the discursive:

> *To be hailed or addressed by a social interpellation is to be constituted discursively and socially at once. Being called a girl from the inception of existence is a way in which the girl becomes transitively 'girled' over time [...] Considered in this way, the interpellation as performative establishes the discursive constitution of the subject as inextricable from the social constitution of the subject.*

Discourse, time and power: how Butler transforms Foucault

Lecercle (2002: 166) describes performativity as the Humpty-Dumpty principle, as it is Humpty-Dumpty's conviction that (in *The Annotated Alice*) "when I use a word [...] it means just what I choose it to mean, neither more nor less". A sign means what the meaning-maker forces it to mean. This conclusion can seem solipsistic. However, the issue is not to point out that the meaning-maker is not alone, and that meaning is not simply the effect that the meaning-maker decides on. So much is obvious, and implicitly supports a Saussurean model of communication, with meanings sent and received. Rather the issue is how to conceptualise the meaning-maker – the I, or the subject.

Humpty-Dumpty's dictum highlights that meaning-making, defined as a performative rather than representative process, is always the inscription of a power relation. It follows that power is not the property of an individual or group of individuals, but a strategy; it is a relation rather than an attribute. In making-meaning, people re-inscribe and re-shape relations of power. How they make-meaning is thus an indication of how they situate themselves, in terms of the distribution of power, in relation to others. Motive might be described as the embodiment of a relation of forces; it is that which forces a meaning.

The relationship between signs and power is central to Foucault's (1966, 1969, 1977) work, which Butler draws on to articulate a model of power, productivity and sign-making. Just as Halliday (1994) argued that signs are organised into functional grammars, so Foucault argued that utterances (what I refer to as texts) are distributed into discourses. Whereas grammar is a resource, discourse is the realisation of such a resource; the concepts are parallel but developed within different disciplinary traditions. A discourse consists of sets of utterances validated in reference to particular social procedures and apparatuses. The concept implies that meaning is produced in relation to social processes, which value and sort utterances by relevance, rather than pre-discursive entities. This means that utterances are not independent of social processes and their relations of power, but the means by which power is exercised.

Foucault's argument emphasises that subjectivity, defined as the point at which meaning is realised, cannot be understood apart from the regulative practices and social norms which make it possible. These create subject positions; people do not define their subjectivity autonomously but by finding a place for themselves within discourses and relations of power. Resources for the constitution of subjectivity therefore precede the subject and are not of their own making.

Foucault has often been criticised for reducing the subject to a residual role in the circulation of discourses (e.g. Callinicos 1989). Howarth (2000) notes that Foucault's discourses seem to function as autonomous systems of rules, that exist independently of their individual formulation, excluding the subject as a useful point of reference in analysing meaning. Understood in this way, discourse precedes and pre-empts any notion of motive at the level of the subject – the term is simply redundant. In *The Order of Discourse* (1969), Foucault distinguishes between discourses that are spoken (in the everyday) and discourses that are already said (which transcend context-specific instances), a distinction which tends to

corroborate accusations that the speaking subject is largely irrelevant in a notion of society as discursive totality.

Butler develops the strand of Foucault's work which conceptualises the utterance as event or ritual, a notion which is also described in *The Order of Discourse* but which becomes more prominent in his later work on genealogy. If the utterance is understood as 'évènement', it does not precede social processes but is sustained by it. Social processes and by extension, the subjects which engage in them, are not from this perspective caused by discourses; rather discourses provide the intersubjective criteria for their intelligibility, recognition and evaluation.

In arguing that discourse is not independent of its instantiations, Butler clarifies the value of retaining a concept of the subject in analysing meaning-making. Subjects produce meaning by citing and re-iterating discourses; motive thus pertains to the re-iteration of discourse. Discourses do not exist independently of this process of re-iteration. This view means that 'subject positions' are not pre-determined locations in a discursive totality, but are instead indicative of the very attempt to establish and inhabit a position within social relations.

In re-iterating discourses, subjects also open the possibility of their re-signification. The very compulsion to repeat means that discourses are never fixed, and by implication, subjectivity never complete. That which enables a social existence – the citation of discourse - is also that which makes it transformable. Butler's concept of re-signification is comparable on this basis to Kress' notion of transformation. Re-signification is motivated – subjects re-iterate discourses for a reason (to achieve subjectivity); in so doing, they re-signify them, or one might say re-actualise them; and consequently transform them.

A notion of discourse based on reiteration does not imply that such discourses should or can be stopped. If repetition is bound to persist as the mechanism for the production of subjectivity, then the question is not how to define subjectivity

independently of discourse, but what mechanisms are available for subjects to exploit reiteration as a vehicle for producing more effective subjectivities, from their own point of view.

Butler's re-working of Foucault is based on a concept of time as repeated citation rather than linear development. Utterances and discourses are not reproduced across time, nor invented, but re-iterated, re-worked, re-shaped.

Re-signification: necessity or possibility?

It is not clear in Butler whether re-iteration necessarily implies re-signification – as in Kress – or simply makes it possible. McNay (2000) and Zizek (Butler *et al* 2000) both make the point that the concept of performativity is reminiscent of Freud's repetitive compulsion disorder, which does not so much open up the possibility for re-signification as reduce the subject to a mechanism for parroting and mindlessly perpetuating discourses. Re-signification, they argue, seems to be valorised in itself in Butler, rather than as part of some framework which might perceive and value change. From their perspective, re-signification is not so much motivated as simply compulsive, essentially meaningless.

In presenting her argument for performativity and re-signification, Butler seems to have been more concerned with distancing herself from the more celebratory interpretation of her work, which aligns performativity with spontaneous and voluntarisic performance, than with exploring the possibility of recognising a process of 'willing' (see Butler 1994). This seems to be a consequence of defining the indeterminancy of subjectivity in negative terms, as the consequence of exclusion and difference, rather than as the basis on which it is necessary to make social affiliations with others.

Whilst emphasising that the re-iteration of discourses logically requires them to be non self-identical, she tends to present re-signification as a possibility rather than a necessity. In *Excitable Speech* (1997: 28), she states:

> *That linguistic domain over which the subject has no control becomes the condition of possibility for whatever domain of control is exercised by the speaking subject. Autonomy in speech*, to the extent that it exists, *is conditioned by a radical and originary dependency on a language whose historicity exceeds in all directions the history of the speaking subject.* (my italics)

If we accept that in the very moment of being reiterated, discourses are altered, re-signification is necessary. Furthermore, such re-signification cannot be framed as compulsive or meaningless, since significance is not an attribute of the discourse but of subjects – subjects produce meaning (which does not exclude the parallel statement that subjects are a consequence of meaning). This does not imply that subjects are autonomously constituted, or have 'control' over language in a voluntaristic, non-relational sense, but it does at least make clear that they are responsible for it, that they cannot but be responsible for it, that their actions cannot be disavowed through some plea to mystifying ideology or overwhelming social forces. Motivated re-signification is not a choice, but a necessary corollary of reiteration; it is not merely possible, but simply what people do when they make meaning. This is how I would interpret Butler's (1997: 39) description of ethical responsibility: "The speaker renews the linguistic tokens of a community, reissuing and reinvigorating such speech. Responsibility is thus linked with speech as repetition, not as origination".

The lack of clarity about how 're-iteration', 're-signification' and also 'expropriation' (of discourses) relate to each other in parts of Butler's work can be understood in terms of her political activism. She is unwilling to describe the ways in which people draw on discourses which are inimical to their obvious social

interests, from her perspective, as 'expropriation'. The danger however is that 'expropriation' simply becomes an act that one agrees with, that it is only perceivable from the perspective of a particular political commitment: people who set out to subvert discourses are expropriating them; people who do not have this explicit intention do not, and simply 'reproduce' them. This however tends to posit the circulation of 'dominant' discourses as some kind of passive reproduction. Tudor (1999) states that the emphasis on the notion of reproduction in cultural studies tends to divide society into those with the capacity to discriminate and contribute to culture 'actively', and the vast majority of the population who are unable to resist all-powerful discursive constraints, although the fact of this constraint is immediately apparent to the enlightened and therefore resistant elite. One of the strengths of the notion of performativity, I would argue, is precisely that it undermines the view that discursive and social norms simply reproduce themselves, a view which sustains a distinction between active and passive discursive production.

This point is related to the validity of the concept of 'agency' in social theory. Tudor (1999) argues that in the analysis of texts in cultural studies, there has been a tension between attention given to the structuring capacity of cultural forms and the activity of human agency, and finding concepts and methods that will allow researchers to explore the inter-relationship between these two mutually determining factors. The greater focus given to audiences, spectators and readers in the last 20 years is an indication that the theoretical pendulum has swung away from structure and towards agency. In their article '"Agency" as a red herring in social theory', Loyal and Barnes (2000: 507) argue that:

> *"agency occupies a central position in much current social theory. [...] [It] stands for the freedom of the contingently acting subject over and against the constraints that are thought to derive from enduring social structures. To the extent that human beings have agency, they may act independently of and in opposition to*

> *structural constraints, and/or may (re)constitute social structures through their freely chosen actions".*

Loyal and Barnes' argument against the premises of the agency/structure debate is that there is no adequate way to identify actions as 'chosen' or 'determined' for the purposes of social theory. They point to the problems which this raises in the work of Parsons and Giddens. Although I have highlighted an apparent distinction in Butler between re-iteration and re-signification, her theory more broadly, I would argue, undermines an easy opposition between agency and structure:

> *We cannot first give an account of human agency and then specify the kind of agency that humans have in language. [...]We do things with language, produce effects with language, and we do things to language, but a language is also the thing that we do. Language is a name for our doing.* (1997: 8)

My preference for a certain concept of 'will', or a process of 'willing', rather than 'agency', is an attempt to understand the mutual constitution of the social and the individual, rather than define them oppositionally. Any act is an act of will. On this basis, one can analyse the functions which subjects perform in reiterating and transforming discourses, rather than make judgements about their social value with respect to one's own ready-made programme of social change. This does not remove the importance of such programmes, but it does perhaps highlight that (discursive) action is nor more or less active by virtue of its political orientation. It also means that one cannot reduce will to intention, or in terms of the focus of this thesis, motive to intention. The meanings one produces in transforming existing discourses escape one's intention; the effects may be more or less than one intended, even, are bound to be.

Conceptualising motive and subjectivity through Butler

In Butler, subjectivity is indeterminate, precisely because it breaks the grammatical necessity which installs either the 'I' or conversely Discourse, Power, Culture or Field as the originator of meaning/subjectivity. Although subjectivity is constructed, socially and in time, it is not constructed by an 'I' or a Discourse which is fully determined before that construction. Butler formulates the problematic as follows: "Construction is neither a subject nor its act, but a process of reiteration by which both 'subjects' and 'acts' come to appear at all. There is no power that acts, but only a reiterated acting that is power in its persistance and instability" (1993: 9). She emphasises that her concern is thereby not to do away with the notion of the subject, but only to ask after the conditions of its emergence and operation. It is in this respect that her theoretical framework is useful in analysing motive in meaning-making, since motive can be understood as the mechanism by which the subject produces itself, under the conditions described above, through acts of textual production.

Butler's debt to a certain tradition of idealism is apparent in the quote above. She draws on Hegel to describe the subject as a point of negativity, which emerges through a process of differentiation and exclusion rather than positive assertion. If the subject is understood to be necessarily incomplete and constituted through difference (difference across time, difference from others and their discourses), then it follows that subjectivity can only emerge by presuming and enacting the exclusion of others. Such a process of exclusion is not personal and internal, but manifested as social relations of power.

This conception of subjectivity counters two others. The first projects a view of the meaning-maker as a fully constituted subject, exercising mastery over signs and using them as vehicles with which to deliver her or his intentions. This is the view central to Saussurean linguistics and also Austin's speech-act theory. The second projects a view of the subject as someone who produces some meanings

intentionally and deliberately, but also others which are not intended. This subject is the Freudian patient. It can also be recognised as a model of subjectivity underpinning beliefs about children's meaning-making; they are often said to be people who say things for no real reason, just for the sake of it; whose signs are just expressions of feelings, not to be interpreted or made sense of; whose sign-making cannot really be taken as anything significant (except perhaps as the expression of unconscious, 'unintentional' meanings).

The argument that subjectivity is authored using social resources opens up the possibility of conceptualising the psyche as exteriority rather than mere interiority (which is either hidden or mastered, or more usually both). This would mean that motive is not made inside me, in the depths of my psyche, but outside, in the world. Such a conception of interiority makes the distinction (identified above in the work of Bourdieu) between intentional and unconscious largely irrelevant. This notion of the psyche can be found in Lacan's re-working of Freud, and notably his conception of the unconscious as a type of discourse, structured like a language. Verhaeghe (1999: 99) describes Lacan's conception of the unconscious as follows: "Everything takes place on the street. Identity is always outside with the Other or, more precisely, in the particular relation to this other."

Butler's concept of the subject is informed by Lacanian theory and debates with Lacanian interpreters (Butler *et al* 2000)[9]. Her concept of 'passionate attachments' is based on a notion of desire as something which is produced discursively. Desire is a common human characteristic. But objects of desire are not. We desire that which is *made* desirable. This means that desire is not an individualised attribute – we desire

[9] Butler critiques Lacan for dissociating the symbolic from the sphere of the social, with the symbolic constituting the structural field of intelligibility within which the social emerges. This conception establishes a hierarchy between social practices and symbolic structures, with structures determining practices. Her work can be seen as an attempt to re-think the value of psychoanalytic theory to social theory, by re-examining the relationship between social practices and what is intelligible symbolically, in other words, the relationship between materialism and idealism. Zizek's (1989, 1997, 1999) work has challenged the rigorously structuralist conceptions of Lacan, and the debates between Butler, Zizek and Laclau highlight the issues raised by, and also the productivity of, psychoanalytic theory in social research.

something largely because other people also desire it, and because it has been constructed as desirable within a social group. Desiring a particular kind of subjectivity is not an instinctive, senseless expression of pre-social angst. Desire – one could say motive – is not something which is secreted away but out in the open, produced in and by social processes and relations of power. Such a conception of desire enables semiotic theory and theories of desire, consciousness and subjectivity to be used in parallel.

Section 4: Defining motive through a conjunction of semiotic and social theory

The social semiotic theory outlined in Section 2 of this chapter has clear overlaps with the theory of subjectivity outlined in Section 3. The concept of transformation in Kress and re-signification in Butler is based on a concept of time, of the development of subjectivity, as both cumulative and retroactive. Subjectivity is both a process of sedimentation, and also continuous re-articulation. The one term makes the other necessary. If time is understood purely in cumulative terms, social existence would be reduced to a ceaseless re-inscription of the same. However, transformation / re-signification not only assumes prior matter but also, in terms of analysing the social and the semiotic, that such prior matter is collective and conventionalised, as a result of social relations of power. Transformation / re-signification is neither spontaneous nor the instrumental action of self-defined subjects. In order to move beyond such a dichotomy, it is necessary to live with a certain paradox, which states that the subject who transforms and re-signifies discourses is itself enabled by such discourses. This constitutive constraint means that motive produces and is produced by continuously iterative articulatory practices – one cannot give an account of motive and then specify the kind of motives that young people have in discourses; motive is what re-signifies but it is also what is produced. To say that motive is constituted by and in discourse is not to say that it is determined by discourse, but it is to clarify the terms by which any notion of motive, or interest and will, is intelligible.

There are also disagreements between the two bodies of theories. The most important one with respect to this study is Kress' attention to, and Butler's methodological indifference to, mode. Butler does not focus on the discursive implications of different materialities. The materiality of modes means that they have specific ways of constituting the social and the conceptual. Modes of representation contribute to the transformative reiterations of discourses, through a process of transduction (Kress 2005b). This concept considerably widens the scope for the analysis of discourse, and adds complexity to the concept of materiality. Butler's use of the term language to refer to all forms of symbolisation means that materiality is most often an analogy for the body as a singular unit. Multimodality means that the body can be considered at the level of senses, enabling analysis of the way in which their distinctiveness and synesthetic combination makes possible differential forms of engagement with the world, and as a consequence different forms of meaning and subjectivity. It also means that motive should be understood to operate not only in respect of choice of discourse and its resignification, but also choice of mode and its re-signification. If performativity is thought of in relation to multimodality, it is clear that subjectivity is produced in relation not only to discourse but also to mode.

Another point of contention is whether transformation / re-signification is necessary or contingent. I have outlined above what I perceive to be a point of unclarity in Butler's argument. This arises because of Butler's commitment to political change, and the apparent distinction she makes between re-iteration and expropriation. Such a distinction is important in drawing judgements about how discourses are re-made. It is less important in this thesis as the focus is on the production of subjectivity rather than an evaluation of the value of this process from an a priori point of view.

In this thesis, social semiotic theory provides me with a methodology to analyse young people's games and how meaning is produced. Butler's social theory allows me to relate the production of meaning to the production of subjectivity. Motive is the term which enables me to describe (1) how signs are made, and (2) how

subjectivity is sought for, as a singular process rather than distinct phenomena. In addition, Kress' social semiotic theory of learning develops an argument for describing transformation / re-signification as learning, and therefore to conceptualise learning as the production of subjectivity.

Attention to processes of transformation and re-signification raise many issues for conceptions of learning, and in particular processes of valuation and assessment. One of the striking differences between Bourdieu, Kress and Butler is the certainty which Bourdieu has of knowing the subject better than he knows himself. If sign-making is understood to be a transformative process which is guided by the motives of the sign-maker, it becomes problematic to specify normative criteria which pre-empt the end-point of such transformation. Kress and Butler portray the subject as indeterminate, produced through transformation, a process they can theorise but not anticipate. This is a rebut to theories of the subject and of society which institute the theorists as masters of their subject matter.

This raises the question about the status of the claims made in this thesis. If individuals transform meaning, it follows that I am also transforming meaning, in a bid to produce a particular kind of subjectivity. Readers of this thesis will also engage in this process. From the perspective of more empiricist traditions, this is problematic, since the object of analysis shifts with every reading and cannot be fully known.

Much of the analysis in this thesis consists of analysing games made by children. Qualms about the status of my knowledge claims are not to be resolved by an emphasis on methodology, as would be the case in more positivistic approaches, but by a close description of my research question and the basis on which it can be formulated. This, I hope, is what this chapter has achieved to some extent.

Given that meaning is made rather than reproduced or recovered, it follows that the meaning of the children's games lies on their surface, in the way they achieve effects

within a social environment, including the environment of the analysis. I do not claim to 'bring into light' young people's motives – assuming they are hidden beneath the surface level of the text - or to recover, through interpretation, the original intention underpinning their design work, but to theorise such motives from the effect their games have. This work is interpretative, not logical nor archaeological. Other interpretations could be offered. However, this approach does not consider relevant the question of whether young people state one thing but could secretly (or unconsciously) mean another, as this would assume a hierarchy between what one does and what one means, rather than two reciprocally determined levels of action. To be comparable theoretically, other interpretations would compete on the basis of a different construction of the students' texts, not a different ontology of the subject and of semiosis. The validity of my claims is based on a theoretical framework incorporating meaning-making and subjectivation. The analysis of students' motives makes use of these theories as well as the empirical data. In this sense, the analysis is interpretative and productive.

Conclusion

In this chapter, I have described the concept of motive, which enables me to treat semiotic material as an indicator of subjectivation (the production of subjectivity). This means that I can analyse the games produced by children as semiotic objects, and describe my findings in terms of the production of social relations. The reason students design games in some ways and not others can thereby be described in terms of the subjectivity they seek.

I argued that the necessity of a concept of motive arises only if sign-making is understood as social action, with the social defined historically (as changing over time) and in terms of differential power relations. For this reason, it cannot be accommodated into Saussurean linguistics, which is based on a representational model of language; or more organic definitions of language and society, associated with aspects of Humboldt's linguistic theories, and today identifiable in literature on

creativity, creative writing, arts education, as well as media production. Both of these models are identifiable in the literature on games and learning, for example, in the notion that curriculum content can be represented and delivered in a more motivating way by using a game-based interface; or in arguments that games are an expression of children's own authentic, organic culture (for example, Prensky argues that children are 'digital natives' for whom playing computer games comes naturally, and whose brains have been reprogrammed to accommodate the interactivity, speed and non-linear structures of contemporary media – 2006: 35).

Alternatives to the concept of motive have been elaborated. Bourdieu's notion of 'interest' describes the cause of agent's actions, but splits it into two kinds, chosen and unconscious (or 'beneath the level of consciousness'). Empirically, one cannot distinguish between actions on this basis, and analytically, all actions are in fact chosen but on a basis of misrecognition or dissimulation of objective structures which supercede and 'determine' chosen actions. Kress' notion of interest is not divided into subjective and objective versions and is understood as situated strategy rather than a condition of one's objectified past. However, in order to reconcile Kress' notion of interest with a theory of subjectivity, I use the word motive, in order to emphasise the compulsive nature of meaning-making; it is a necessity and not an option, and should not be reduced to intention – one cannot fully account for one's motive.

The social semiotic definition of interest is based on a conception of sign and context as processes in time, rather than particular kinds of essences or static objects. This means that attention is paid to their evolution, or transformation. I argue that social theory is however necessary to describe the generative principle of such transformation.

Butler's work develops a theory of subjectivity which emphasises its constitution in time, on the basis of a process of re-iteration. Subjectivity is achieved in semiotic acts, carried out by individuals, using social, situated, and historical resources; thus,

subjectivity is not simply the cause of semiosis, but its effect – we make meaning in order to secure a social position. This argument develops Austin's concept of performativity, extending it to all semiotic acts. In clarifying the relationship between the semiotic and the material, Butler argues with both Austin, who defines identity as prior to meaning-making, and Althusser, who defines identity as constituted in discourse. The concept of re-iteration means that identity is never fully achieved, but continuously sought for. It is the desire to achieve subjectivity which constitutes motive.

A common reference point for both Kress and Butler is Foucault's concept of discourse. Kress develops the implications of this concept in theorising the motivated sign, whereas Butler elaborates on its significance for theories of the self. A common criticism of Foucault is that he leaves no room for agency. Butler's work emphasises that agency is not the opposite of social structures; if power is a relation rather than an attribute, it follows that social structures are a condition of action rather than a barrier to action. Re-conceptualising the conditions under which individuals act is important in the area of children making media, where claims about empowering children and increasing 'agency' are rife (Buckingham *et al* 1995). Similar claims are also made about playing games, because their interactivity is often understood to give the player more agency over the meaning of the text (Pelletier 2006). I have used the term will, in the Vygotskian sense outlined in Chapter 1, in order to avoid the dualisms of agency vs determinism; active vs passive; and individual vs social. In terms of analysing my data, it means that I understand all semiotic acts as motivated.

Finally, I explore the consequences of this theory of meaning for the status of the claims made in this thesis and the basis on which they can be found valid and reliable. This is what I will explore further in the next chapter, which describes how the data were collected and analysed.

CHAPTER 3

CONCEPTUALISING AND ANALYSING DATA

One of the implications of understanding meaning-making as performative is that data is understood to constitute reality rather than simply report on it, and that there are multiple ways of constituting reality. Law (2004) argues that data analysis and methodology are often constructed as a means to an end, a short-circuit that links the analyst with reality. The idea that meaning is *made* implies that analysis is a way of crafting reality: "Methods [...] not only describe but also help to *produce* the reality that they understand" (Law 2004: 5). Hammersley (1997) notes that one of the characteristics of constructivist approaches to qualitative research is that data are not understood as facts that passively await our noticing them; the world becomes 'data' as a consequence of the researcher defining a phenomenon as meaningful.

In this chapter, I describe the relationship between my theoretical framework developed in Chapter 2 and what I refer to as 'data' in the three subsequent chapters. These data are made from materials generated as part of the Making Games project. They include computer games made by young people, video footage of the game-making process in classrooms, questionnaires, interview transcripts, photographs, field notes, photocopies of homework assignments and project reports. These materials constituted the primary data to address the research questions set by the Making Games project. In this thesis, I develop a secondary analysis of these materials, sorting and reconfiguring them in order to construct them as instances of categories defined as meaningful in relation to a theoretical framework which is different to that recruited in their initial collection.

The materials in the Making Games project were collected primarily with respect to the development of pedagogic approaches, teaching resources, and conceptual understanding of curriculum areas such as 'media literacy' or broad learning objectives such as 'knowledge of media genres'. Such materials are thus signifiers of

the success of pedagogic efforts, and in the case of students' work, as signifiers of competence developed with respect to such efforts. The game-authoring software was evaluated in terms of the extent to which it could support teaching in a range of schools and classrooms. The schools we worked in were signified as instances of classroom practices which were broadly comparable with practices in most other schools; findings were generalisable on the basis of such similarity.

In this thesis, the materials are constituted as signs differently. Students' work is a signifier of the production of subjectivity, classrooms are signified as instances of specific configurations of social and semiotic resources, and lesson plans are indicators of one of the ways in which semiotic entities are legitimised as 'games'. Attention in the analysis is given to the diachronic social conditions under which game as sign is produced over time, rather than to the synchronic instantiation of semiotic convention or institutionalised norms and categories characteristic of media education. The perspective adopted in this thesis thus 'produces' data from the same set of materials differently.

Materials from the Making Games project have served two purposes in this thesis. First, they have helped to inform my thinking in developing the theoretical framework set out in Chapter 2. Initial ideas for this developed from my attempt to make sense of phenomena which arose in the first few months of the Making Games project, and which could not be easily reconciled with aspects of the literature on games and gender (Pelletier 2005b). Second, the materials provide concrete illustrations of the processes of meaning-making that are conceptualised in the theoretical framework. As I argued in chapter 1, this thesis is intended to address problems in current educational literature related to conceptualisations of the relationship between computer games and learning. My purpose is to try and develop an alternative conceptualisation, by investigating theoretical approaches as well as materials produced as a consequence of field work.

My approach is intended to sustain an argument for seeing textual practices in a particular way. Within such a research logic, concerns about samples and their representativity are not foregrounded: I do not engage in data analysis in order to make generalisations about texts on the basis of how representative they are of an empirical domain. Rather, my interest is in how useful the combination of social and semiotic theory, as described in Chapter 2, can be in analysing meaning-making.

This way of configuring the relationship between the theoretical and the empirical domains shares similarities with other work in multimodality theory. Jewitt (2003b, 2006) analyses examples of technology-mediated learning in order to contribute to the development of multimodal theory. She selects three instances of texts in order to investigate "how the multimodal representations afforded by new technologies reshape school knowledge" (Jewitt 2003b: 2). *Multimodal Literacy* (Jewitt & Kress 2003) brings together examples of ways in which multimodality is applied in the context of educational research. Some of the main methodological texts I draw on in carrying out my data analysis (Kress & van Leeuwen 1996; Burn & Parker 2003; van Leeuwen 2005) are similarly intended to develop theory by demonstrating how it frames materials as specific kinds of semiotic entities, with respect to a system of categories and relations.

In Section 1, I describe the Making Games project, and discuss epistemological issues raised by secondary analysis. I then discuss how materials have been reconfigured to generate data for this thesis. Section 2 consists of a conceptualisation of the game-making software as a semiotic resource. In Section 3, I describe the analytical process carried out with the data. In order to combine social semiotics and Butler's social theory for the purposes of data analysis, I draw on Foucaultian discourse analysis, a common point of reference for both bodies of theory, as well as an analytical strategy with which to conceptualise data (Andersen 2003). I use discourse analysis, therefore, to constitute meaning-making as an indicator of subjectivity.

Section 1: Producing a secondary analysis of materials from the Making Games project

Defining secondary analysis

Secondary analysis is most familiar in quantitative research (Hyman 1972; Dale *et al* 1988; Hakim 1982; Kiecolt & Nathan 1985), although in recent years, and in response to initiatives to encourage the archiving of research 'data sets', there has been increased interest in the issues raised by secondary analysis in qualitative research (Corti 2000; Corti & Thompson 2004; Corti & Bishop 2005; Heaton 1998, 2000, 2004; Hinds *et al* 1997; Szabo & Strang 1997; Thorne 1998). Hinds *et al* (1997: 408) define secondary analyses, in a qualitative tradition, as "the use of an existing data set to find answers to a research question that differs from the question asked in the original or primary study." Szabo and Strang (1997: 408) claim that it can however also involve looking at "the same questions with different analysis methods". Although much of the literature tends to focus on researchers' use of materials they did not collect, Heaton (2000: 1) indicates that in the majority of cases, secondary analyses "were authored by at least one person who was involved with the primary research from which the data were derived".

In her review of the literature in this area, Heaton (1998, 2000, 2004) distinguishes between different forms of secondary analysis: supra analysis, supplementary analysis, re-analysis, amplified analysis and assorted analysis. The categories represent strategies for producing data, which relate to the genesis and purpose of the research question. Studies are likely, however, to fall into more than one category. The strategy adopted in this thesis covers aspects of both supra and supplementary analysis, the former relating to the development of new questions and the latter to an investigation which goes beyond the original question.

My research question in this thesis is concerned with young people's learning in computer game-making. The Making Games project was also interested in what

young people learn when they make computer games, but produced answers primarily within a media education and media literacy framework, against established criteria in those fields for describing texts and pedagogic approaches. In this thesis, I conceptualize texts as instantiations of social relations and subjectivity. Such an interest "exceeds the analytical remit of the primary study" (Heaton 2000: 12), and arose as a consequence of attempts to make sense of certain kinds of texts – notably students' games – as well as documentary texts which were relatively marginal to the development of the Making Games project.

In order to make explicit how materials have been re-signified in this thesis, I will outline the design and methodology of the Making Games project, as well as its data collection procedures. I also highlight my role within the project, to provide a basis by which to describe how my own relationship to the materials has been re-shaped for the purposes of this thesis.

The Making Games project

Over three years (2003-2006), the Making Games project created computer game-making software, in partnership with a commercial company (Immersive Education), and developed pedagogic approaches to teaching games as genres within a media education framework (the project's final report is available on the ESRC website). The rationale for the project is that computer games are an important genre in youth culture. To argue that games should be studied in school is to make both a claim about the importance of this genre and the knowledge, understanding and competences which young people develop with it; and also to argue that young people should be able to engage with the genre more reflectively or critically, by studying games in terms of representation, ideologies, values, industrial processes, target audiences and so on – in other words, to develop a fuller understanding of the social processes in which such a genre is implicated (Buckingham 2003, 2004). Media production, from such a perspective, is intended to develop understanding of texts by enabling students to make their own, and also create circumstances by

which young people are able to participate in social processes not only as consumers but also producers (Buckingham *et al* 1995; Burn *et al* 2001; Burn & Durran 2006). Previous research had indicated that existing resources for making games were either highly constraining (enabling the development of only simple puzzle or platform games), or too open-ended (requiring advanced programming skills) (Willett 2005). A project team was therefore assembled to develop software which could support media production in schools as part of courses about games.

Field work was carried in order to inform the design of the software. This involved a process of participatory design, in which 'technology users' contribute to the development process (Druin 1999). Participation in this process involved students making games in a range of settings and classroom teachers integrating the software into courses. Both students and teachers also took part in discussions with the programmers, artists and education specialists from Immersive Education. Researchers[1] worked in seven schools across the UK, undertaking and observing a range of activities, including classroom teaching, extra-curricular clubs and summer camps. Five schools were only involved in field work activities in the final year, when the software was nearly complete and it became possible to give it to teachers to organise their own activities around it, without direct or continuous support from researchers. In the two other schools, researchers worked closely with teachers and students over the full duration of the project. One of these schools was a mixed comprehensive in a predominantly middle class area of Cambridge; the other a girls' comprehensive in an economically deprived borough of London.

In the Cambridge school, researchers worked with a teacher to develop a course to teach games as part of an English, Media and ICT module. We began running this with a Year 8 group (12-13 years old) of 30 students. Amended versions of this course were run with two further Year 8 groups over the next two years. On the basis of this work, a teaching pack was developed to accompany the software[2]. I

[1] There were three researchers: myself, Dr Andrew Burn and Professor David Buckingham
[2] This has not been published formally, as the software continues to be developed

took part in discussions with the teacher on how to organise the course and attended most sessions. I also contributed to the teaching pack by describing the approaches taken in the seven schools.

In the second year in the Cambridge school, I ran an after-school club with students from the prior year's class (now Year 9 students); twelve students were approached, on the basis of the interest they had expressed in game playing, and offered £20 tokens to participate in the club. The club ran for six weeks, with two sessions lasting whole days – and for which students were dispensed from attending lessons - and the remaining four for one hour after school. Numbers fluctuated from session to session: two students came to all six sessions; the others came for four sessions on average, with five students coming to the first session only. The purpose of the after-school club was to give a more limited number of students additional time to use the software, and so go beyond what could be achieved within the constraints of fifty-minute lessons. We also wanted to examine approaches to game design in more 'informal' situations, to gain insight into the ways in which 'game literacy' manifested itself in different kinds of settings.

In the London school, we started by organising two extra-curricular clubs, one at lunchtime devoted to game playing, and one after school devoted to game making. The club ran for two years, with the same group of students, nine in the first year, and seven in the second and third year (although these numbers varied from session to session). Students were offered £20 tokens each year as an incentive to remain involved in the research activities. In the first year, both lunchtime and after-school clubs ran for 14 weeks, and in the second year for five weeks. In the final year, we organised an intensive session over two and a half days. The purpose of this club was to focus on the interests of girls, with respect the content of the software and approaches to game-making. This took into account literature on games and gender, which indicated that girls played a narrower range of games, and played them less often than boys; and that girls were marginalised within game culture, as a consequence of marketing strategies, the development of dedicated public spaces

and technologies for game play such as arcades and consoles, and the 'masculine' content of games including violence, sport and buxom damsels (Cassell & Jenkins 2000a; Alloway & Gilbert 1998; Cunningham 1995; Fromme 2003; Gailey 1996; Graner-Ray 2002, 2003; Thomas & Walkerdine 2000; Orr Vered 1998; Kafai 1996, 2000)

In both schools, and in the third year of the project, the students who had taken part in the after-school clubs were given the software to take home, again to create additional time for students to experiment with it and also to examine the kinds of literacy competences developed in this context. I ran a number of sessions in schools that year with students from the clubs, but primarily to introduce new functionality rather than to make games as such. The intention was for students to make games at home over a period of two months, and then show them at a 'game competition' event I organised, in which prizes were given out. For a variety of reasons, most of the students who took the software home did not make or return games to me after the two months. There is relatively little material from this aspect of the field work, although students did amend games made in the previous year and present them at the competition event.

Over three years, three software prototypes were released by Immersive Education, one in each year. Each year's field work activities were based on one prototype. We made little use of the first prototype, because it was relatively basic in its functionality. The second version was more developed which meant playable games could be made. The third version was similar in terms of its functionality to the second version, but included characters and weapons as additional 'assets'[3].

My role and observational position varied between sites and over time. For the English, Media and ICT course, I worked with the teacher to plan activities. The intention was for me to then attend a number of sessions and keep track of the teaching process, as the basis for the development of teaching materials. In the

[3] Software assets are software-based objects or functions which constitute a software application

second year of the project, once we started using the game-authoring software on a regular basis, its unstable, experimental and highly unfamiliar nature meant that my role changed and I became more of a technical advisor, explaining functions to students, identifying and keeping a record of bugs, and liaising with the school's technical staff to upgrade graphics cards, download software patches and so on. As a consequence, I attended nearly all sessions after the first couple of weeks, and took students' games back with me to repair bugs or check if they worked without problem. This means I became familiar with individual games, and with some of the students who made them. In the third year, I attended only selected sessions of classroom-based work, because I was visiting a number of schools.

For the after-school game-making clubs, the original intention had been for me to observe a teacher from the London school run a set of activities. The teacher resigned from the school shortly after field work activities started, and it proved difficult to find another who was similarly interested and available. For both sets of clubs, then, I planned and ran a set of activities, usually with the help of another researcher or a teacher who sat in. I devised planning activities, demonstrated the software, and then worked with students individually, explaining functionality and discussing issues raised as part of their game-making.

In the Cambridge and London schools, several data collection methods were used. The games which students made were periodically collected: after every few sessions in class, and after every session in the clubs. Some sessions of the classroom-based course and the clubs were videoed and most (or all those that I attended) were recorded on a digital recorder. Sessions of the after-school club (which also took place in a classroom) were also recorded with an audio recorder and filmed with one video camera on a tripod placed to the side and at the front of the classroom. From the second year onwards, but only in the clubs, I also carried a small hand-held camera with me as I moved around the classroom. Semi-structured interviews were carried out with a number of students, as well as teachers. These focused on their experiences with the game-authoring software, evaluations of the

course, and with students specifically, their experience of other types of game-making (such as use of level editors[4]), as well as evaluations of commercial games. In Cambridge, there were also two focus group discussions at the start of the project, one with students who claimed to play many games, and one with students who claimed to play none. Interviews and focus groups were videoed and recorded on a digital recorder, and subsequently transcribed or summarised. Teaching materials, lesson plans and homework assignments were all photocopied or kept by researchers in their original form. In the first two years of the project, questionnaires were completed by students on their media consumption generally, as well as games specifically, including equipment they had at home such as consoles or computers. I kept field notes, written after sessions. These were more elaborate in the case of the English, Media and ICT course, partly because I had little video data for this setting and partly because such reports were intended to inform the development of teaching resources and the evaluation of pedagogic approaches. Field notes were used to write project reports, to describe the activities researchers had undertaken and keep the commercial company informed of developments. These also include initial thoughts about the value of various field work activities and approaches to teaching game-making.

In the five other schools we worked in, data collection methods were more restricted. I visited each school once and observed one session (which took place either as part of an existing course, or as a supplementary lunchtime activity), and interviewed each teacher involved in the use of the software on its value as an educational tool and best practice with respect to integrating it into existing courses. I also collected all the games that had been made.

My primary responsibility and main focus over this time was ensuring that field work activities, as laid out in the Making Games project proposal, took place successfully. I observed students' interactions with the software partly with an eye to

[4] A level editor is a software application used to design maps, levels or other kinds of assets for video and computer games

understanding how students produced texts, but also to note difficulties experienced with the software which I could report back to Immersive Education. Most of the materials from the Making Games project were generated prior to the formulation of the focus and question in this thesis (this became clearer in the third year of the project).

The Making Games project followed British educational research guidelines on ethics. Written permission was obtained for all participation in after-school activities from parents. Pseudonyms have been used in all published outputs, including this thesis.

Re-signifying materials from the Making Games project - epistemological considerations

The degree of fit between my thesis and the Making Games project

In the literature on secondary analyses in qualitative traditions, an area of debate is the 'degree of fit' between the primary and the secondary study (Heaton 2004; Hinds *et al* 1997). This issue arises because the analysis of qualitative materials often begins during field work and informs the remaining data collection. This process of 'sequential analyses' (Miles & Huberman 1994) allows researchers in primary studies to leave open the focus of the research and refine it as they proceed, a process which cannot be replicated in secondary analyses.

The issues I focus on in this thesis arose during, and as a consequence of, my participation in the Making Games project. Therefore, I did not collect data specifically or exclusively for the purpose of my thesis. However, the problem of 'fit' is dealt with in practice by exploring questions that derived from my previous analysis of the materials. My research question and its theoretical framing arose as part of my efforts to explain phenomena which were not of primary concern to the Making Games project. I did not develop them independently and then seek materials to put them into practice. Rather, I developed a theoretical framework in

order to make sense of texts I had already engaged with extensively. Heaton (2004) and Hinds *et al* (1997) tend to focus on the completeness of adequacy of 'data sets' in judging whether materials can be reconfigured, but in this instance, my concern was with how to judge 'completeness' with respect to an emerging conceptual framework. This involved evaluating what the materials could be taken as instances of with respect to my research question and its theoretical framing. Such a process required constant questioning and re-visiting of materials, whose meaning fluctuated in relation to the breadth of my interests in developing the thesis.

For example, in answering the questions posed by the Making Games project, I defined the software in largely technical terms, as a set of functionalities, constituted by 'software assets', 'levels of granularity' and 'media objects'. This is because my understanding of the software arose from negotiations with programmers over technical specifications. For the purposes of this thesis, the software has been reconceptualised as a semiotic resource, described in semiotic terms (this is in the last section of this chapter). Software assets turn into semiotic entities. Media objects (such as pictures or recordings of people speaking) become instances of mode and genre. This process of 'translation' into another language, with respect to a different set of interests, was a constant process of revision of prior understanding.

Although Heaton (2004) argues therefore that the problem of 'fit' is particularly acute in secondary analysis of qualitative research because the research design cannot be amended in the light of initial analyses, it could be argued that secondary analyses involve a similar process of revision and revisiting of early assumptions, but with respect to the theoretical framework and how it shapes the production of data. The materials did not 'stand still' as I developed my theoretical framework but emerged under different guises and according to different possible configurations. They were not simply 'given', as such. The validity of this thesis is largely dependent on the way in which this 're-signification' of materials has been fixed, and the sliding of possible meanings purposefully stabilised (I describe how this was achieved below in discussing sampling).

A consideration in stabilising the materials as instances of my theoretical categories related to how different configurations produced different methodological limitations. Aside from my theoretical interests, a reason for focusing on specific kinds of texts (notably students' games, but also drawings and interview transcripts) is that I did not have sufficient evidence to take a more ethnographic or sociological approach (in other words, an approach which places a heavy emphasis on 'observation' or 'participatory observation' – as described for example in Atkinson & Hammersley 1994). I was not an observer of interactions in the Making Games project, but usually placed in the role of teacher. Extensive video footage could have potentially allowed me to adopt some distance towards the physical interactions I had been a part of. However, video was used judiciously in the Making Games project. In a crowded classroom, it was difficult to position the camera in such a way that it captured most of the room whilst also not getting in the way of either teachers or students. In keeping a record of the English, Media and ICT course, I preferred to use an audio recorder linked to several microphones which provided high quality recordings of group interaction. As I planned the thesis, it seemed that a complete set of video footage of the course could have been useful, to carry out more in-depth analysis of social interactions around the screen, as achieved by Jewitt (2003b, 2006) in her work with activity theory and multimodality theory. The video footage that I collected (mainly from the clubs) captures whole groups rather than detailed interactions between individuals – although the handheld camera I used in the clubs records my own interactions with students in detail. I have no video footage of students making games at home.

However, working with social semiotic theory and with a social theory concerned with language, literature and representation means that it is methodologically justifiable to focus primarily on documentary (or 'literary' in the broad sense) texts, whilst also conceptualising such texts as sites of social interaction. This reduces the importance of observation and so minimises the limitations of the data collection methods. Nevertheless, I do also draw on audio recordings and video footage where

this is available, in part to help me reconstruct the sequence of events but also to analyse how the specific texts I am concerned with were produced as physical signs and interactions in the sites of research.

The problem of knowing the context

Another issue in the literature on secondary analyses in a qualitative research tradition is the extent to which it is possible to know or reconstruct the context of the primary study (Corti & Thompson 1998; Fink 2000; Heaton 2004). In many respects, this is not a substantive epistemological issue in this thesis. In selecting materials for analysis from the Making Games project, I focused only on those I had collected directly, and in the sites I had worked longitudinally, in order to have some certainty about how the materials had arisen. This is also why I draw mainly on materials from the first two years of the project, and generated in the London and Cambridge schools, in which I interacted extensively with students and teachers. In the third year, field work was distributed across more sites which meant that I worked for much shorter periods of time in each. Deacon *et al* (1999: 260) note that one advantage of longer term 'observation' or participation is that it enables the researcher to develop an understanding of what counts as 'normal' within the setting, and thus to develop a reliable basis for identifying 'critical' cases as well as what constitutes more marginal practices. Descriptions of what constitutes 'observation' in some methods books do not have many affinities with my actions in the research settings, although longitudinal work did give me some insight into the 'normal' characteristics of each setting – taking into account that the research process was an intervention which precisely changed 'normal' routines. My knowledge of the sites of research also enables me to identify 'critical' cases, which can be taken as representative of more general processes; for example, my understanding of the focus group discussion analysed in Chapter 5 is informed by my participation in classroom activities and interactions with the named students over six weeks.

However, using materials that I observed in the making does not resolve the issues raised by 'knowing' the context of the primary study. Knowledge of context is

always partial and subjective. My understanding of the context of discursive production is shaped by the conceptual framework by which materials are constituted as signs. In changing this framework, my own perception is also changed. In Chapter 4, I discuss the use of headphones in the English, Media and ICT course. At the time of the course, I noted that headphones made it difficult to judge whether students had understood how to integrate sound files into rule writing. Much of my time that session was spent checking that the headphones had been plugged into the correct socket, had been switched on, and that there were enough for each pair of students. I made a note subsequently that the use of sound, and consequently headphones, in class created additional difficulties for both the teacher and the technical support staff, and would thus need to be reviewed with programmers (in terms of whether such a facility could be switched off at the teacher's discretion) as well as with the other researchers when it came to preparing teaching resources. In examining the games produced that session, my understanding of the significance of the headphones has changed. Sound, heard only with headphones, is used to constitute a space for game play which is removed from the public space of the class. My understanding of events, and of the context in which they occurred, is thus transformed.

This example highlights the strengths of secondary analysis, because my revised understanding of the headphones as semiotic resources was only possible on the basis of my participation in the primary study; the significance of the revised judgment becomes apparent in relation to my initial conclusion. However, there are also unarticulated assumptions that I made in collecting materials, which by their nature are more difficult to revise. I have an emotional attachment to the materials – all of them, at the end of the Making Games project, were signs of the project's success in the face of substantial and unanticipated difficulties in implementing the research design (for example, teachers resigning, students forgetting to attend club sessions, the software not working, and so on). Reflecting on the significance of this attachment to my analysis in this thesis has made me aware of a somewhat celebratory tone I have sometimes taken in describing the games, a tone which was

appropriate (even necessary) in the Making Games project in justifying the educational validity of its activities. My stance towards the data has had to be revised. However, with respect to the issue of 'knowing the context', the issue then is not that I do not know the context of the research, but precisely that I constructed it from a particular perspective. This would however also apply in any primary analysis. A secondary analysis has brought some of these perspectives into sharp relief, by virtue of the contrast in research questions.

Sorting, sampling and re-signifying materials

One of my aims in writing the thesis was to clarify issues in the literature on computer games and learning (as outlined in Chapter 1). In order to question the notion that games remained the same kind of 'object' or sustained the same kinds of meanings irrespective of where and why they were played, I decided to examine what counted as a game in different settings. It had struck me in the Making Games project that students' approach to making games in class, the after-school clubs and at home were different, particularly as I had observed the same students making games in all three kinds of settings. This is not surprising, but something that I thought warranted closer examination.

In Chapter 4, I examine the games made in these three settings. In the Making Games project, these settings were constituted as 'case studies' in Deacon *et al*'s (1999: 366) sense of "an instance of a broader phenomenon". In this thesis, however, my interest is precisely in the particularities of the research process, which means that the contexts are not understood as cases of a broader category of similar cases. In other words, my claims do not relate to how games are made in classrooms versus after-school clubs, but rather pay attention to how principles of game design can be understood in relation to specific, contextual configurations of social and semiotic resources.

In order to compare the three settings, I examined all of the materials generated in them over the length of one phase of the field work. For the English, Media and ICT course, this included: the games made in each session (games were often saved as successive versions which means that I have several files or versions of a game made in any one session); audio recordings of seven of the nine sessions; video recordings of the first session; scans or photocopies of all submitted homework assignments; originals of teaching materials and lesson plans; project reports detailing the initial plan for the course as well as detailed descriptions of seven of the nine sessions, and more cursory reports of the other two sessions (based on descriptions provided by the teacher); audio and video recording and summary report of an interview with the teacher at the end of the course describing his view of it; and video recordings of two interviews with pairs of students on how they made their games, their evaluation of the software, and experience of game-making outside the course.

In analysing the conditions of discursive production in which students' games emerged as texts, some of these materials are more relevant than others, because they pertain more closely to the development of texts. Students' evaluations of the software, for example, written as a homework assignment, are quite broad and general and do not give much insight into their textual practices with it. The analytical process involved examining each game (over 50 separate files) and focusing on how general principles of design developed over time (a detailed description of the analytical process is the focus of section 3). These files were initially collected for technical reasons, to identify software problems, but in this thesis, they become significant in terms of mapping the historical evolution of games. The audio recordings, lesson plans and homework assignments enabled me to reconstruct the course, and match principles of design to strategic, pedagogic interventions. On the basis of this, I comment on the relationship between an evolving context and the meanings which students made.

For the after-school club and students' homes, I have a narrower range of materials, because game-making was not integrated into a formal course. For the after-school club, I have the files of games from each of the six sessions; video footage from each session, both from a fixed camera filming the whole group, as well as from a handheld camera which recorded my interactions with students; audio recordings of each session; and my plan for the club drawn up prior to its start. The most significant materials here are the successive versions of students' games, which enable me to trace how games developed over time. This can then be compared to social interactions in the club, as recorded on video.

In analysing students' home as a context of discursive production, I have the files of the final games submitted to the game competition; video recordings of students' five-minute presentations of their game at the competition event; and interviews with two of the three students who did manage to make games at home on how they went about it, as well as their evaluation of the process.

In chapter 5, I analyse data to explore a different theme - the production of gender in different settings, and different genres of interaction. Concerns about gender were conceptualised in the Making Games project in terms of differential competences with respect to studying and making games, as well as different, specific interests in playing and thus making games. Before the first prototype of the software was developed, we carried out specific data collection procedures to identify girls' interests in games, and the respects in which they differed from those of boys. This was intended to inform the development of the software in terms of visual design as well as the genre of game play it might facilitate. In the mixed school, procedures included focus group discussions, paper-based plans and designs, and observation of how students talked about games in class. In the girls' school, we had a number of discussions about the games students played at home. However, it quickly became obvious that summarising 'what girls wanted' from gaming software was going to prove somewhat more difficult than the literature on this suggested, since in different situations and over time, students gave different indications of the games

they had played and liked. There was also little consistency between the mixed school and the girls' school.

To explore this theme further, I pick out a number of 'critical' cases, in Deacon *et al*'s phrase (1999: 260), which changed my thinking about the 'problem' of gender with respect to games. These cases are instances of methods we used to identify girls' (and boys') preferences in playing and making games – a focus group discussion, drawings of screenshots, questionnaires and games, all drawn from the mixed school, where gender was explicitly signified by students to achieve differentiation (unlike in the girls' school). In this thesis, the materials produced on the basis of such methods are re-signified as instances of the production of gender, with respect to particular semiotic resources and genre of interaction. I analyse them using discourse analysis, although my approach in each case is tailored to the type of data – transcripts of speech, still visual image and game. Although there are many different ways in which gender could be analysed with respect to the Making Games materials, I have selected data which demonstrate the significance of semiotic resource, as an intrinsic aspect of genre of interaction, and also consequently data collection method.

In my theoretical framework, I emphasised the relationship between context, semiotic resource and subjectivity. In order to focus on the third member of the triumvirate, I decided to carry out a detailed analysis of all the games produced in one site of production, focusing on the way in which they developed as texts in relation to each other, as competing claims to subjectivity. This is the subject of chapter 6. Much of the data analysed in chapters 4 and 5 originated in the mixed school, but the focus of chapter 6 is the after-school club in the girls' school. This was small enough (seven students, technically) to allow me to comment on all the games made. Unfortunately one of the games was corrupted and even historical versions can no longer be opened; another student attended only one session and so did not make much progress with her game; one game was a joint effort by a pair of students. In all then, four games were produced. My interest in analysing them

relates to identifying a number of textual strategies which students developed in positioning themselves as particular kinds of subjects (namely, fans). I am not concerned with mapping comprehensively the social relations in the club, but rather with examining particular kinds of strategies as realised with the games. This is done to explore the semiotic concept of 'design' (Cope & Kalantzis 2000; Gee 2003; Kress 1998, 2000, 2003a; Jewitt & Kress 2003), which I think offers one way of conceptualising what students are doing when they produce texts. The materials I drew on for this chapter were: successive versions of the four games by five students over each of the sessions; video footage from each session, both from a fixed camera filming the whole group, as well as from a handheld camera which recorded my interactions with students; paper-based plans which students made in the first session of the club; and project reports describing the sessions.

Section 2: The game-making software – a semiotic description

Before describing the process of analysis of students' games, it is necessary to describe the software with which they were made, in order to clarify the possibilities which students had for making texts. As I indicated above, the software evolved over three years. I will focus on the functionality which characterised it in the second year, since most of my analysis pertains to materials from that period.

The software was designed to allow for the creation of specific kinds of texts. I will describe here in terms of Halliday's (1978) four semiotic functions: the experiential, logical, interpersonal and textual functions. The first two functions are often collapsed into one, referred to as the ideational function. However, in this instance, it is helpful to separate what can be understood as lexical entities from the logical relations which are establish between them. The functions derive from Halliday's argument that semiotic resources do four things. First, they represent something, such as a process, an event, an object or a person. Second, they express logical relations between what is represented. Third, they establish social relations between the producer of a message and the receiver. Fourth, they relate what is being

expressed to the context in which it is being expressed, and indicate relevance within that context.

Halliday's functions have been applied to other modes of communication (for example, Kress & van Leeuwen 1996; Burn & Parker 2003). In drawing on them here, I am describing certain possibilities for making texts, rather than the texts themselves. For example, the software is intended to realise the textual function in certain ways, but it is sign-makers who makes texts, not the software. In other words, I can describe the restricted possibilities for making texts, but the textual function is a function of texts, not the software.

In outlining the semiotic resources available to students in terms of these components, I focus on their restrictions. All semiotic resources, and the modes by which they are constituted, are restricted – words, pictures, sounds, have particular ways of configuring meaning.

The experiential function: the entities available for representing the game world

The game-authoring software consists of a number of ready-made entities. These can be conceptualised in terms of lexical entities: not words, but a kind of 'vocabulary set' by which the game is constituted. The entities are either visual or aural. Visual entities are either two- or three-dimensional, and include locations (rooms), doors, props, and still images. Aural entities are sounds indicative of processes, such as a door opening, a car passing outside a window, or a phone ringing. The entities have attributes, some of which can be altered, such as their name, size or state (a door can be open or closed, a room can have its lights on or off). The possibilities for altering attributes are specified (a door can be open or closed, but not ajar). The entities range from the relatively concrete, such as a table, to the more abstract, such as zones (known as trigger zones) for delimiting a particular space within the game world. They also range in terms of how restricted they are semiotically. Individual rooms cannot be edited or altered in any way, whereas sound and two-dimensional

still or moving images can be sourced outside the software (for example, on the internet) and imported in. This establishes a division of labour. The software provides a set of entities, which agents configure within the restrictions of certain logical relations (described below). Authoring a game means organising entities into a particular configuration. The role of the student is to organise relations between entities rather than produce the 'lexical' entities or the 'syntactic' classes within which such entities are organised. An analogy can be made to some extent with lego, the popular children's toy; the software provides pieces and a system for organising such pieces into semantic units (or texts). Unlike lego, there are also formally organised opportunities to import other pieces of the same kind from outside the software. However, in both cases, the emphasis is placed on creating relations between pieces rather than making the pieces.

Below, I provide illustrations of a number of lexical entities.

Figure 3.1: When starting to create a new game, this is the opening screen. At the top, organised along a scroll bar, are the lexical entities; here, a number of locations (rooms or settings) are shown. These are dragged and dropped into the grid area, and aligned in such a way that doorways match up, so that movement is possible from one location to the next.

Figure 3.2: Four locations have been dragged into the grid, and doorways – highlighted in red – have been aligned. Once locations have been laid out, the space of the game can be rendered in 3D.

Figure 3.3: A 3D rendering of the tiles in Figure 3.2. There are numerous locations, but a restricted number of location 'themes'. In the second year of the project, the software included 6 themes: Egyptian, Victorian, sci-fi, drains, Miniworld, and 'plain'. Figure 3.3. shows locations from the Egyptian theme, which are designed to look like an Egyptian tomb. Within the Egyptian theme, there are 12 locations. These themes are visual, rather than logical – in other words, there is no logical restriction in the way locations can be aligned. A tile from the Egyptian theme can be placed next to one from, for example, the sci-fi theme.

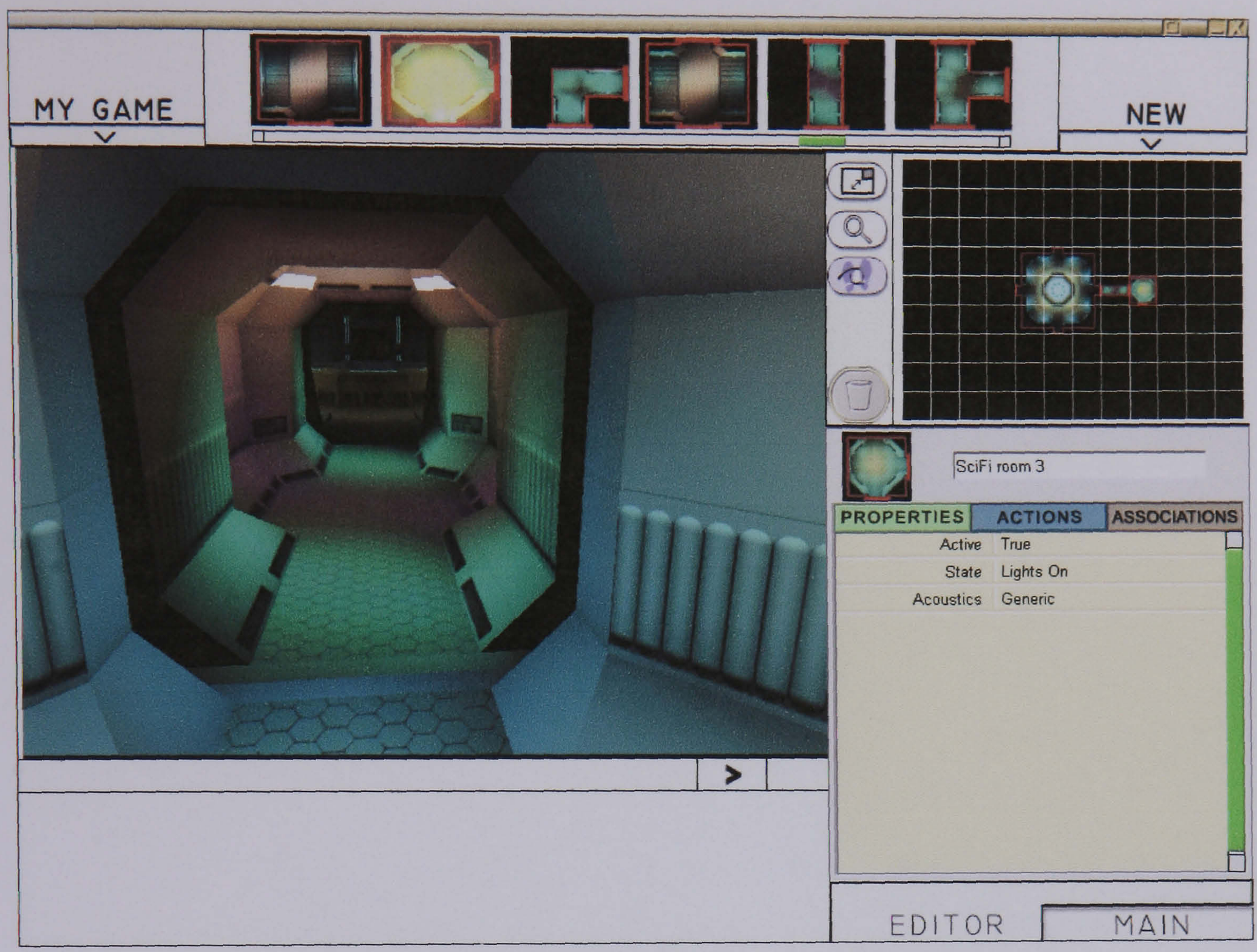


Figure 3.4: An example of a location from the sci-fi theme

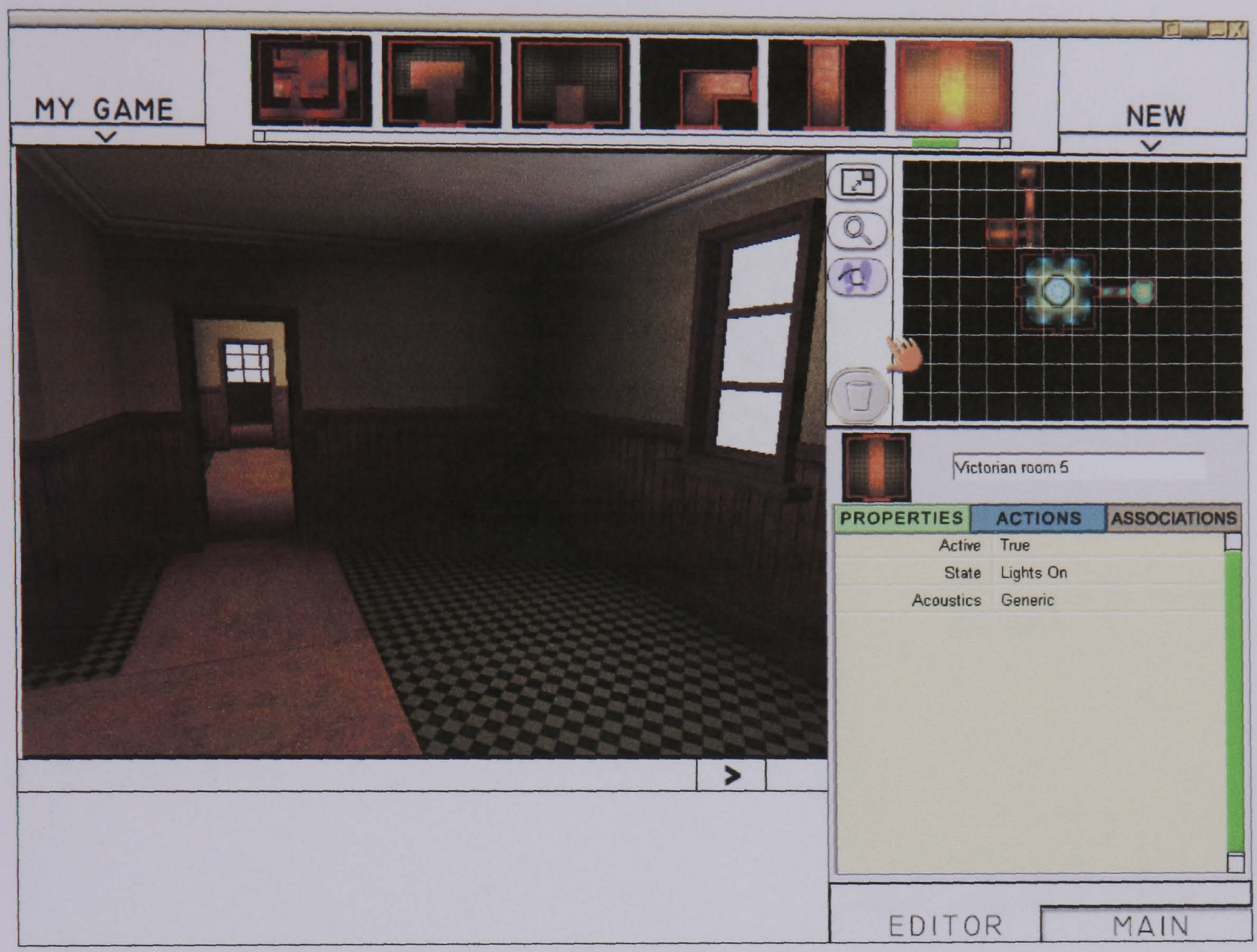


Figure 3.5: An example of a location from the Victorian theme

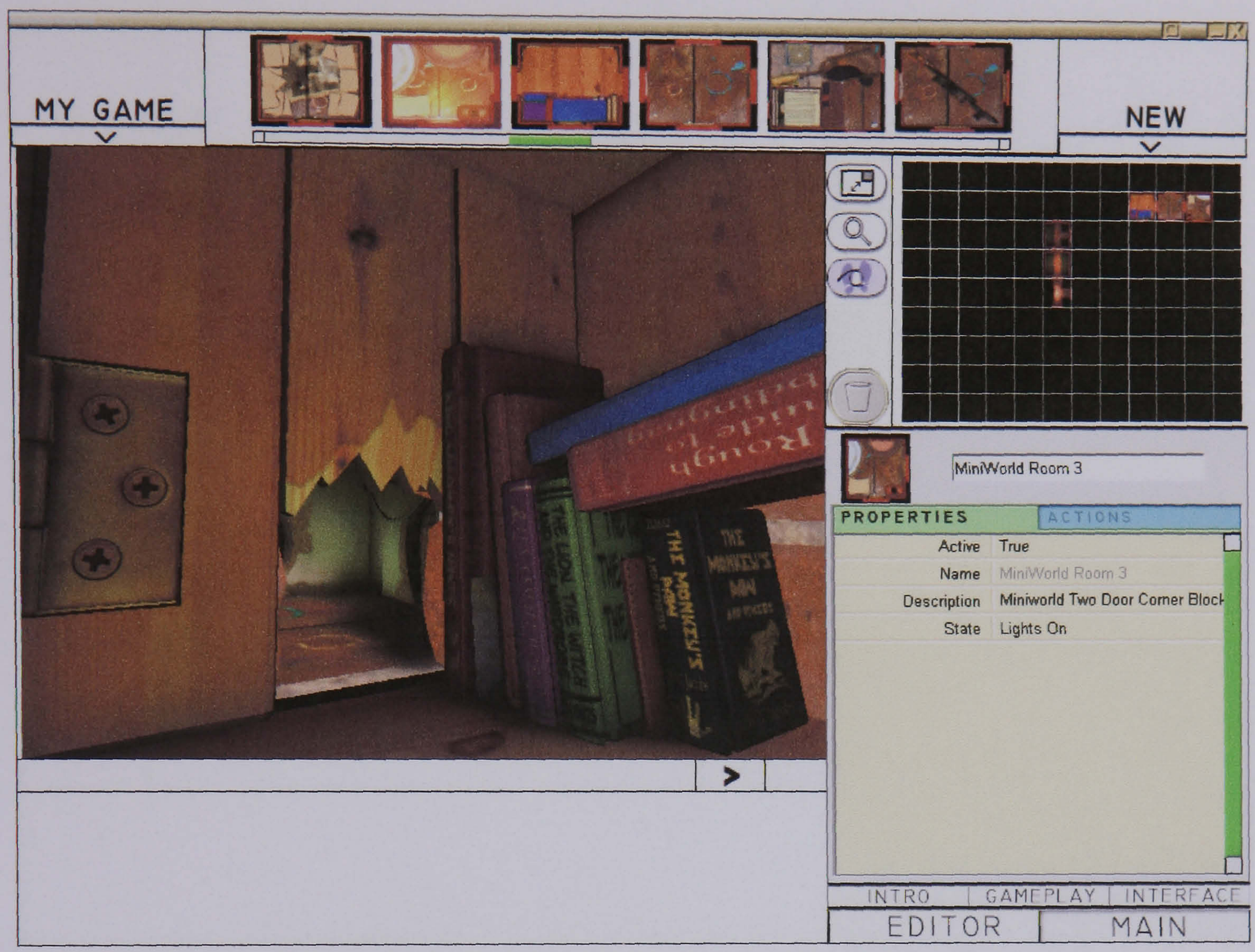


Figure 3.6: An example of a location from the Miniworld theme

Figure 3.7: An example of a location from the drains theme

Figure 3.8: An example of a location from the 'plain' theme

Figure 3.9: Within locations, props can be dragged and dropped. Above, a card swipe machine has been placed in front of a doorway, and a door has been placed in the doorway. There are numerous props, broadly matched to the location 'themes'. Props are arranged along a scroll bar, shown at the top of this image. On the right hand side, the properties of the door are listed. The property settings can be altered.

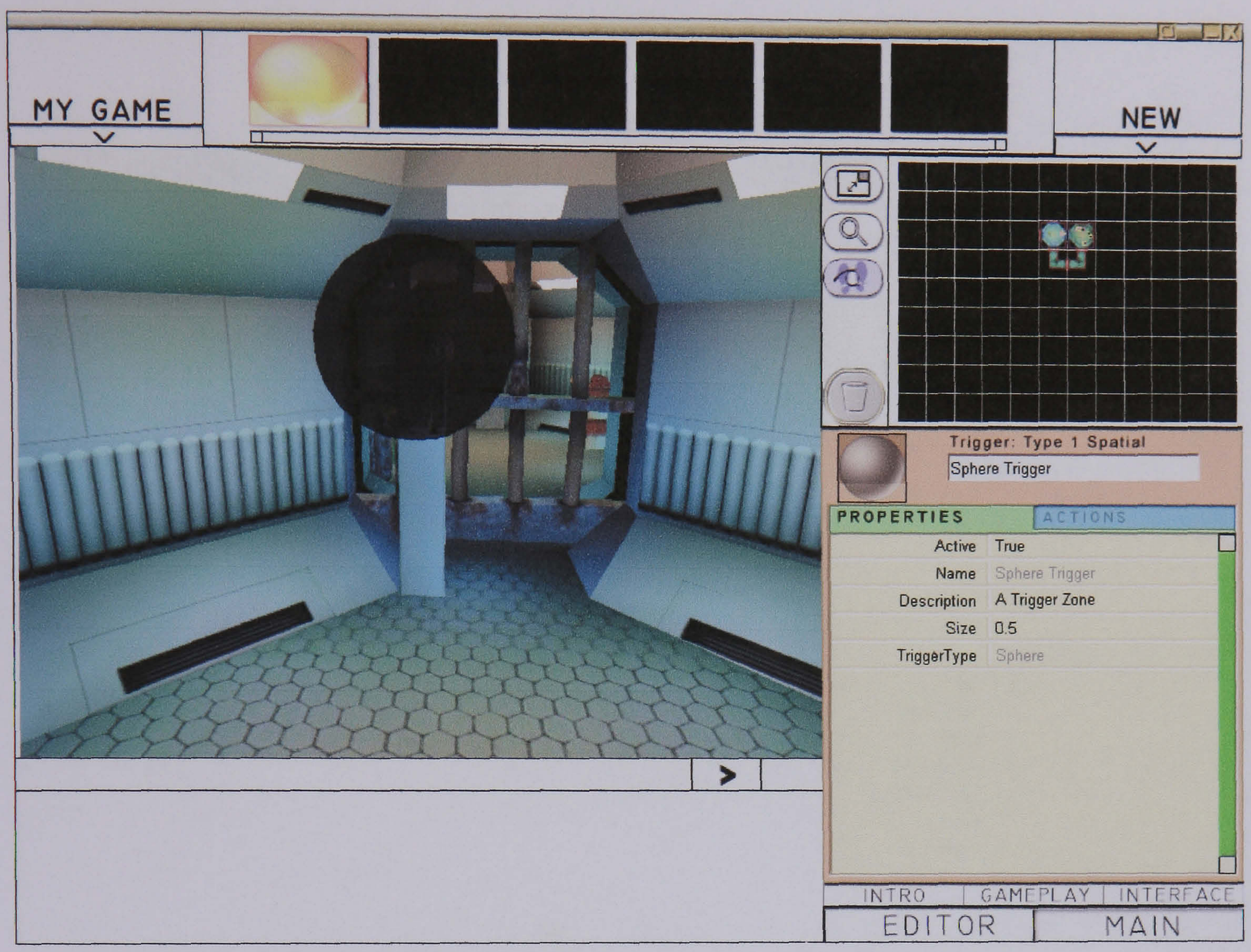


Figure 3.10: A trigger zone has been placed above the card swipe machine. This delimits a space in the game, but it remains invisible when the game is played. As I will discuss in the next section, this trigger zone would for example be used in writing a rule such as 'if the card enters the trigger zone, door open'.

Figure 3.8: Locations can be decorated with numerous props.

The entities are designed within a visual and spatial modality of certain genres of computer games (Rollings & Adams 2003). By this I mean that they are highly coloured, highly detailed, and draw on the conventions for evoking three-dimensional worlds on screen; spaces are contained, with clear boundaries, as they are in designated play spaces such as a tennis court or a stadium. Adams (2003) notes that the primary function of architecture in games is to support the game play, rather than be naturalistic. This is achieved by providing constraint, concealment, obstacles, exploration and tests of skill (chasms to jump across, etc.). In the software, locations constrain movement within a delimited space, a space in which there is something to do, obstacles to be overcome rather than bypassed; space consists largely of contained rooms and corridors. There are no vast landscapes, only impassable terrains. Props facilitate concealment and exploration; there are numerous props which can be opened and closed, such as drawers, safes, boxes,

crates, coffins, buckets and wardrobes. Other kinds of props are indicative of certain kinds of obstacles, such as levers, switches, or valves which have 'on' and 'off' settings, making it possible to set a requirement that the setting be changed to progress in the game. In addition, there are several props closely associated with gaming spaces, such as first aid kits, oil drums, wooden crates and vending machines, commonly found in 3D games to realise functions such as increase player health, facilitate explosions, or conceal resources. Most rooms have several doorways, which facilitate the placing of locked doors and the assemblage of mazes. Information can be written inside closed books, on scrunched up paper, rolled up scrolls or tape recorders – all of which suggesting visually that they contain precious information. The spatial 'themes' (sci-fi, Victorian, Egyptian, and so on) specify the space, by associating it with particular historical periods, stories, events and actions – locations and props are dramatic and evocative. Although there is a 'plain' theme, its association with the other locations suggest that it is an extension of the sci-fi theme rather than a stand-alone group.

Figure 3.9: A selection of props, including a generator which does a chugging movement when on, a lever that is on or off, two machines with various moving parts, a chest that opens/closes, a platform that moves up/down (and on which items can be placed), a chair, a console, three types of crates, a filing cabinet that opens/closes, two kinds of health kits, a rock, a set of weights, a mine and a mobile phone.

The visual and spatial modality is suggestive of specific kinds of texts, within specific genres (broadly, action or adventure 3D games). Game-makers can of course ignore this or be unaware of it. This is nonetheless one of the ways in which the software is different from more generic programming environments, such as Flash, which supports the creation of a variety of multimedia texts.

The software consists of two kinds of interfaces. Figures 3.1-9 illustrate the designer interface – this is where settings are specified and rules written. I refer to this in the thesis as the software's 'design' mode. The player interface is where the game is played. It is realised when the 'play' button is pressed. I refer to this as the software's 'play' mode.

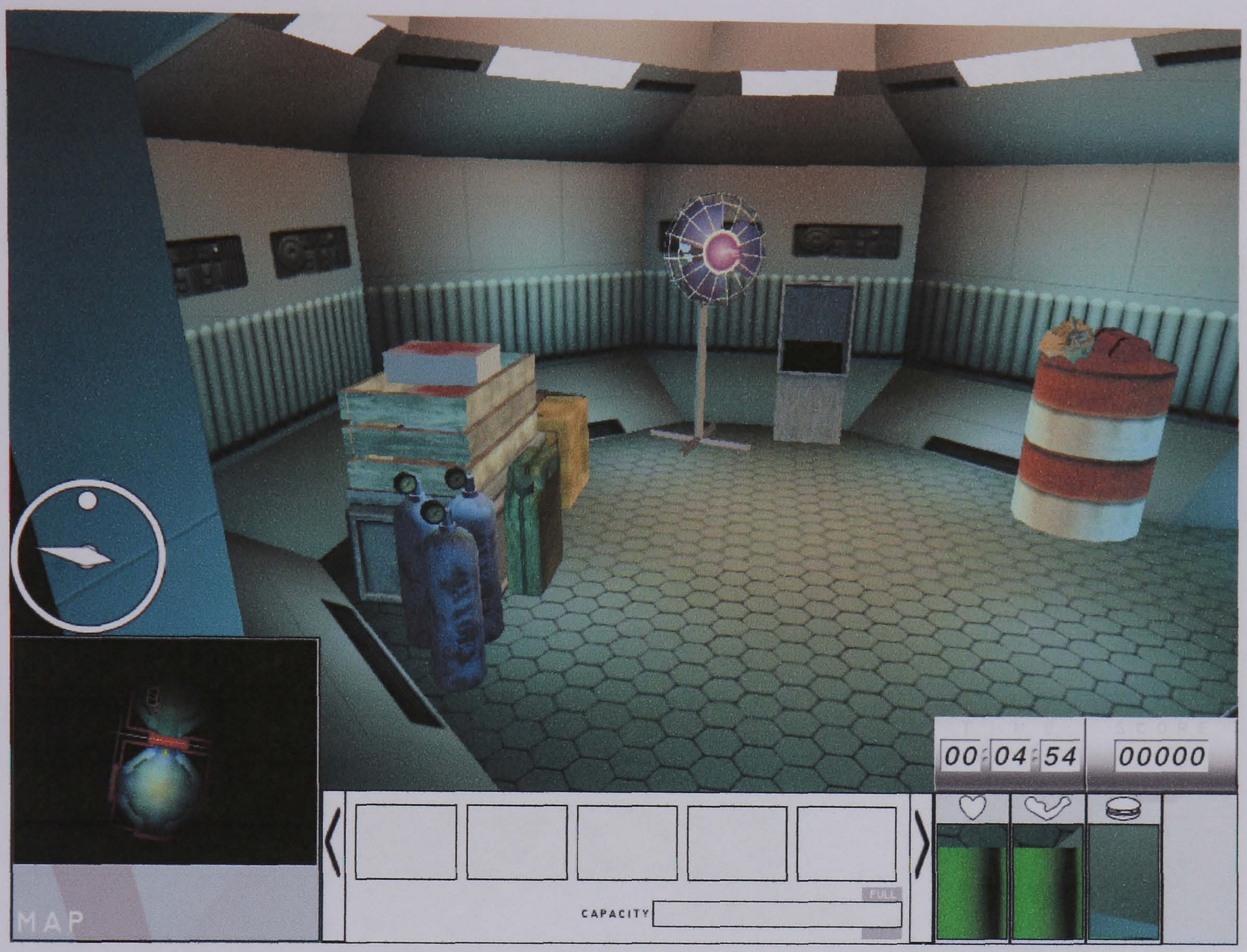


Figure 3.10: The player interface. This is a rendering of the game as shown in Figure 3.8.

The player interface can be understood as the *semiotic* realisation of the text as *logical* relations. It incorporates a number of default items, such as an inventory in which specific entities can be stored - entities in the syntactic class of 'pick-up' props - indicators of health, strength and nutritional levels, a timer, and score board. These frame the area of the screen, specifying its contents as a game.

Figure 3.11: In this view, several pick-ups have been placed in the inventory: an oxygen canister, a health kit, a piece of paper left on the oil drum, and several sticks of dynamite. 'Pick-ups' are props which can be transported around the space of the game – I return to the various kinds of props in the next section.

Figure 3.12: Pick-up props have associated descriptions which can be edited by the game maker. Above, clicking on the 'examine' button (highlighted in green) brings up a screen in which a specification for the piece of paper has been inserted.

I have tried to give some indication of the degree of control which students have over the lexical entities in the software, both in terms of range and possibilities for specification. Restrictions are technical or formal, as well as cultural and social, and some are more negotiable than others.

The logical function: the structures according to which entities can be organised

Entities within the software are organised into what can be termed 'syntactic' classes, such as player (as entity within the game), author's game, locations (rooms and corridors), props (entities which cannot be moved by the player), active props (props

with an animation such as a lever that moves between on and off), pick-ups (props which can be picked up and examined by the player), trigger volumes (which trigger an action) and media (sound, and still and moving images).

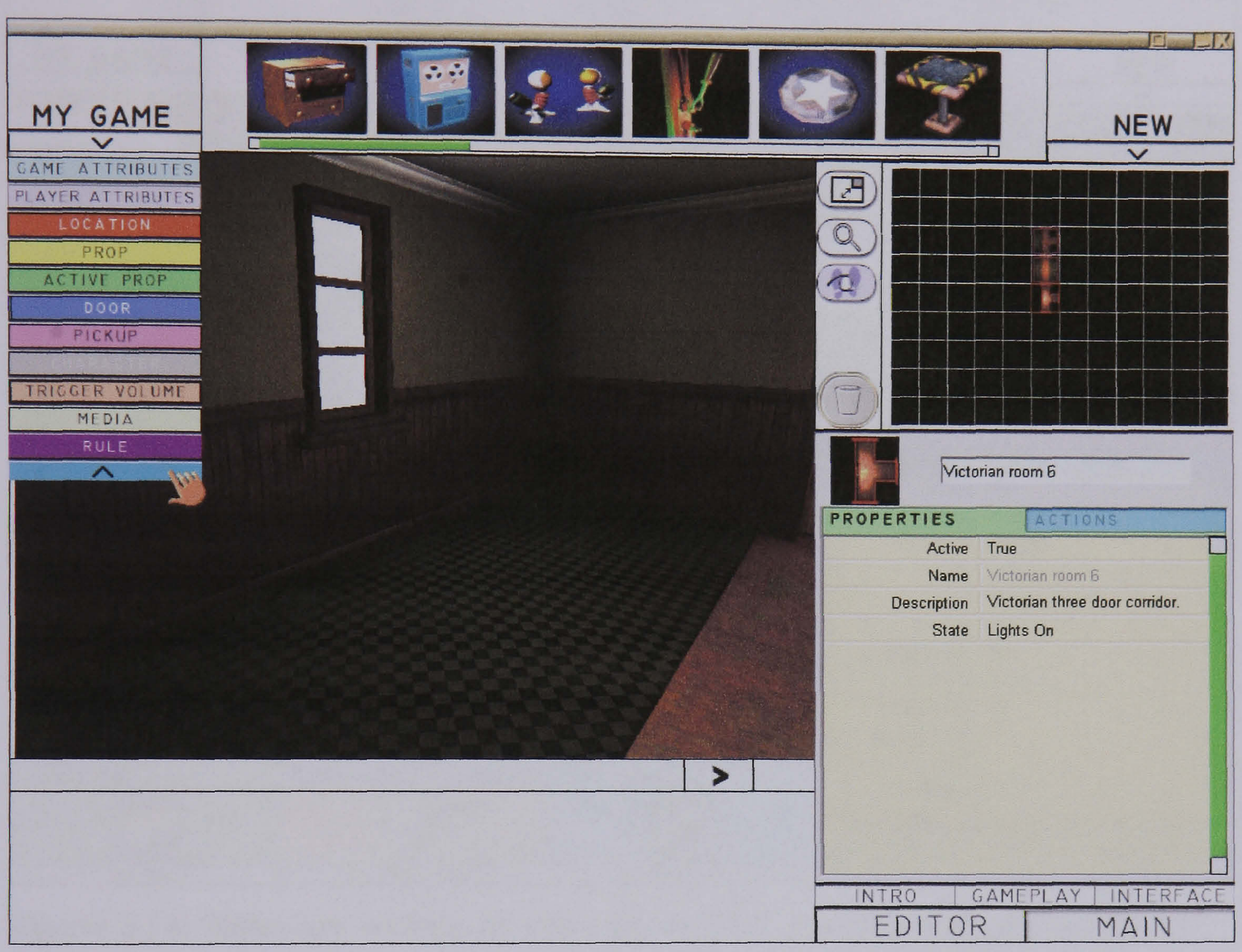


Figure 3.13: The syntactic classes in which lexical entities are classified are listed on the left hand side

These classes establish the actual and the potential properties of entities (a location can be moved around in and have entities placed inside it, a door can be open or closed). The actual properties are the entity's 'state', with potential properties realised through changes in such states. Properties establish the position an entity can have in the rule system. Rules define how an entity within the game interacts with another – what the subject is, the process and the goal. The position an entity occupies relates to its syntactic class.

Games are interactive. The rule system is therefore structured to determine the conditions under which a pre-specified outcome takes place: 'If X then Y'.

Figure 3.14: Rules are written by selecting entities and arranging them into a three part structure, as shown above. Rules are rendered visually as well as in writing. Here, the rule reads: 'If Keycard enters Sphere Trigger Open Engine room door'. The Keycard's properties are shown on the right hand side, with the state of such properties indicated in the right column.

A rule is a condition by which the properties of an entity are changed, the entity in the example shown in Figure 3.14 being the engine room door. Rules have only one possible structure. It is not possible for example to write a rule with the form 'If X and Y, then Z'. However, the same result is achieved by combining two rules. Similarly, negation is achieved by the lack of a specific rule, or making the rule as a whole active or inactive (applicable or inapplicable) depending on the state of an

entity. So the condition 'If X but not Y, then Z' can be achieved by writing 'if X then Z' and making this rule active (making it applicable), when Y is in a specified state, determined as 'negative'.

One way of conceptualising the rule system is according to Boolean logical operations. Game-authors determine the inputs and the outputs from a restricted set of entities. The logical function NOT, or negation, is achieved by the absence of a rule. The logical AND operation can be achieved by writing two outputs for one input, for example, 'If Keycard enters Sphere Trigger, the audio file Whoosh plays'. As a consequence, the door would open at the same time as a whoosh sound file plays. The two outputs are independent of each other, but achieved through the same input. The logical OR function can be achieved by having two inputs for one output. With a second rule 'If dynamite enters Sphere Trigger Open Engine room door', the effect could be described as follows: 'If dynamite OR keycard enters the sphere trigger, open engine room door'. By combining the logical functions NOT, AND and OR, further logical relations can be created. NOR and NAND, for example, can be achieved by making rules applicable in relation to each other.

In writing rules, entities in different modes can be interlinked; an image can be associated with a sound, a piece of writing with a particular three-dimensional space. The primary mode of organisation however is spatial. The first step in using the software is to choose one or more locations. The organisation of space precedes everything else. Rules can only be written for entities placed in the game, but most entities can be put into place prior to writing rules for them. This means spatial relations temporally precede logical relations (as created through rules) in the authoring process – again this puts particular emphasis on the design of a space, the environment of play. This predisposes logical relations also to relate to the exploration of space. The three-dimensional image therefore is semiotically predominant and underpins the logical organisation of the other modes.

The triggers in the game – which cause actions, linking the subject and the goal – also relate primarily to space.

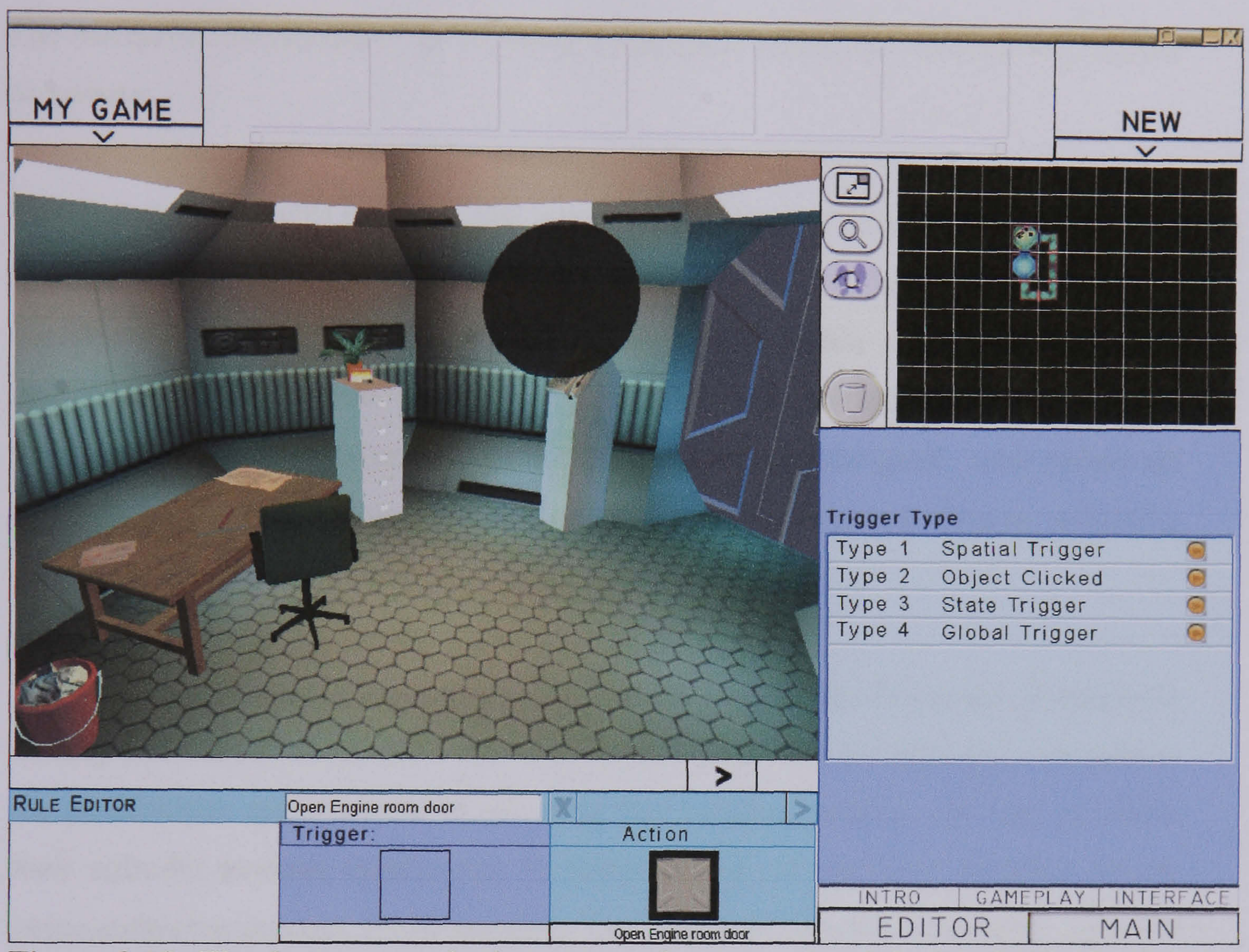


Figure 3.15: The four types of triggers are shown on the right hand side. In the third year, further triggers were added to facilitate shooting and dialogue.

The first trigger, 'Spatial Trigger' causes events when an entity enters a pre-defined space, such as a trigger zone or a named location. The second trigger, 'Object Clicked', causes events when an entity in the three-dimensional space is clicked; clicking involves selecting an entity within a space. State and Global Triggers are used primarily to create secondary events; they might be described as triggers to create dependent clauses. State triggers cause events when an entity is in a certain state – they operate in conjunction with a primary rule which brings about this state. Global triggers cause events when a property of the game is realised, as a consequence of previous rules. Global triggers relate to situations characteristic of

games; when the player's score exceeds a certain amount, when a time limit has been exhausted, when the player's health reaches zero.

The interpersonal function: the forms of interaction which the software is designed to sustain

The games made with the software involve four kinds of interactive relations: (1) relations between entities within the game, created through the rule system and by specifying properties, (2) relations between entities within the software and the people using those entities to create a game, including their attitudes towards those entities (3) relations between the author and the player of the game, what people do to or for each other through games, and (4) relations between players, including people who watch others play.

The possible grammatical structures of (1) have already been discussed. Points have already been made about (2) – the division of labour that the software instantiates, the possibilities authors have in selecting and handling entities, the way in which their attitudes towards entities can be demonstrated, or can have an effect on the game-authoring process. I will therefore focus here on how the software is intended to facilitate (3) and (4).

The software is designed to support two kinds of interaction: game-making and game playing. This clearly does not exclude other forms, such as analysing rule structures, etc. However, I will focus on these two here. As a game maker, all of the software's entities are available. As a game player, it is principally those that the game maker has made available (there are default resources, such as the interface). In 'design' mode, logical rules are written but are not processed, or are not carried out. Play mode is defined as such because the rules are effected, although they cannot be viewed, edited or added to. What defines 'design' mode therefore is the definition of rules but not their effectivity; in order to see how those rules take effect, an author presses a 'play' button to open the game in play mode. In 'design' mode,

all the logical rules written by the author are available; in 'play' mode, only those rules which the player triggers off are effected.

It is worth noting that within the software, the author of a game controls the player's movements and actions through the organisation of space rather than from where they see the space. Games created within the software have a first person perspective, which means that the space is viewed as if the player is standing within it – symbolic embodiment is achieved through point-of-view. The first person perspective is conventionally associated with certain game genres, and therefore forms of interaction. It connotes forms of narrative, visual design, and mechanics of play.

Over the research period described in this thesis, the software was necessary to play games. Only students who had access to the software could play the games made with it. This means that play rarely took place outside of the space and time dedicated to authoring – there was no possibility of e-mailing games or posting them on a web site, for instance, for others outside the research activities to interact with.

The textual function: establishing textual coherence

The software enables the production of texts which cohere formally. This is achieved through rules and properties. Although I have focused primarily on rules written to make games, it is helpful analytically to distinguish between three kinds of rules. First, there are the rules which constitute the game-authoring software itself – what the software is. This is made up of the software's functionality and default settings. Second there are the logical rules which the game-author writes to create their game. These determine the logical conditions by which play takes place. And third, there are the rules of play; these are the semiotic conditions by which the player engages or progresses in the game in some way. The first set of rules are created by the software developers, the second by the game-maker and the third are instantiated in 'play' mode. These three sets of rules are not independent from each other, but it is useful to distinguish them analytically. My analysis in this study

pertains to the third level; I examine the games as semiotic (rather than logical) entities. This does not mean that I examine how people played games in the sites of research, but that my focus is on the games as playable, semiotic texts.

Other aspects for realising textual functions have already been touched upon. Entities are organised in a three-dimensional space, which means that the game as a textual, semiotic entity is produced by establishing spatial relations. These relations are made with entities based on modal resources such as writing, sound, image, movement or colour. They are also made in relation to the mechanics of play, by which I mean the processes by which the game is played and progress made in some way, for example, winning or losing points/health/time and so on. To play a game, the game-maker selects a starting position. This identifies the beginning of the game, with the mechanics of play and spatial arrangements specifying the conditions under which the game ends.

Section 3: The process of analysis - operationalising the theoretical concepts

In analysing the data, I combine two approaches. The first is based on Foucault's (1968; 1972) description of archaeological discourse analysis. As I noted in Chapter 2, Kress and Butler understand their own work in part in relation to Foucault. Foucaultian discourse analysis therefore provides a methodological framework for aligning and operationalising their theoretical concepts.

In order to analyse objects of discourse, Foucault (1972; Andersen 2003; Howarth 2000) distinguishes between four levels of a discursive formation: (1) the formation of objects, (2) the formation of subjects, (3) the formation of concepts and (4) the formation of strategies. This means that data can be questioned as follows: (1) how do statements construct, order and classify objects (in this study, games); how are objects specified and characterised; which relations are established between objects; (2) why do objects enable subject positions; what qualities relate to subject positions; in which situation can subject positions be taken up; (3) how do concepts

organise and connect statements; how does a statement actualise a particular concept and not another; how do discursive formations (sets of connected statements) draw on concepts from other formations; and (4) what kind of strategy is realised when discursive formations emerge; how do formations constitute each other; what relations and parallels does a discursive formation have with other formations that are exterior to it. Foucault states that each level is characterised by a set of "strategic possibilities" (1968: 746[5]); the actualisation of such possibilities is thus motivated.

The second approach stems from a re-working of Halliday's (1978) functional grammar in multimodality theory, which allows texts to be analysed in their ideational, interpersonal and textual dimensions. Multimodality theory (Kress & van Leeuwen 1996; Burn & Parker 2003; Jewitt & Kress 2003; van Leeuwen 2005) has extended this framework to non-language based texts. This functional view of meaning-making allows texts to be interrogated as follows: what event or process is constituted (what field of social action is referred to)?; what social relations are established by constituting the event or process in this way (what register does this semiotic artefact have)?; how is the constitution of this event relevant in this situation (how is this semiotic artefact operationally relevant)? Semiotic production is motivated at all three levels.

Below, I clarify how these two frameworks can be adapted to my data.

Interrogating the data

A discursive analytic strategy based on Foucault's work (1968, 1972) can be carried out under the four headings described above. To operationalise Foucault's approach, I also draw on Andersen (2003) and Howarth (2000).

---

[5] My translation

The formation of objects

The question here is under what conditions is a game established as an object of meaning. To address this, I ask the following:

- according to which practices is the game created, ordered and classified?
- how is the game specified and characterised as an object?
- what hierarchy of objects does the game form a part of?
- what regularities are there in the different instances of games?

These questions serve the purpose of isolating each game as a semiotic artefact, and identifying and classifying its conditions of emergence.

To answer them, I draw extensively on chapters 2, 3 and 6 of Kress and van Leeuwen's *The grammar of visual design* (1996), which address how images fulfil ideational and textual functions. This enables me to describe how games are specified and characterised as visual objects, the regularities in the different instances of games, as well as the regularities in other visual objects. From this, I can establish the practices by which games are created, ordered and classified. This involves comparing games and how they establish, reference and transform genre conventions; analysing video footage and seeing how aspects of games were responded to in context; analysing the purpose of pedagogic devices (and how they were intended to remedy problems or address issues); and comparing the games with other evidence, including interviews and questionnaires, to explore how students and teachers explained, justified and rationalised design decisions in different situations. In analysing other data in relation to the students' games, I can also establish the hierarchy of objects of which the game forms a part and the relations established between games and other objects. My focus, however, is on games as texts, which imply or instantiate specific social relations. Other data are introduced to analyse the conditions of discursive production.

Images and games are different kinds of entities, but images are a modal resource for constituting games as a genre. Drawing on a grammar of visual design is not

intended to focus on the visual at the expense of other modes such as the aural or the written. However, it does mean that such elements are framed as components of a visually organised text.

The grammar of visual design focuses primarily on still, 2D images. Students' games are three-dimensional spaces. This has implications for describing their composition, since spatial distinctions such as front/back, left/right are to some extent a property of the player's movements. Spatial layout restricts such movement in particular ways, so such distinctions are not redundant, but they are not necessarily fixed once and for all. The games are interactive, which means that items within a game change their properties in response to player actions. This makes possible forms of conjunctions which cannot be realised in still visual images. Lemke's work (2002) on hypermodality is particularly relevant here, since it describes interactivity in terms of re-statement, categorisation and exemplification – in other words in terms of a sequence of interrelated parts. This means that the design of interactive visual artefacts can be analysed in terms of multiple sequences of semiotic experiences.

Kress and van Leeuwen describe the means by which images are constituted as objects of meaning, at the ideational and textual level (pp. 74-75, 107-108, 224-225). This description is extended in Kress and van Leeuwen (2001) and van Leeuwen (2005). Below, I list the means by which such functions are fulfilled in students' games. Some of these also relate to the interpersonal function:

Vectors[6]	In a game, vectors establish a 'playing path', which consists of a route through the game. They also establish processes, such as transactional actions (e.g. the player clicks on a door and the door opens). Such processes can establish links across a game. Links can

[6] Vectors connect two participants, and Actor and a Goal, or two Interactors.

be described in terms of explanation (e.g. the sound of a lock being turned when a key is placed in front of a door explains why the door opens), specification (the means by which an item of information is made more specific, for example, an image of a handbag placed near a tiara suggests that it is 'the princess's handbag'), and exemplification (the means by which an example is given, for example, the effect that an item has in spatial relation to another).

Classificatory processes

This refers to the way in which items are assigned possessive attributes in order to classify them conceptually. In games, conceptual categories are established in part through economies, which are created by a system of values assigned to objects or actions, for example winning points in return for entering particular spaces. Different objects can be classified as belonging to the same category by assigning them a certain value (health value, points, and so on) or certain properties (such as opening doors, killing enemies, and so on).

Spatial composition

Items in games have degrees of *salience* (an item draws attention to itself due to its size, its place in a space, its colour, among other features); are subject to *framing* (an item is visually connected or disconnected from other items through framelines, framing devices, vectors, colour, shape, etc.); and have an

	information value (significance is established by whether they are centred, on the left or right, at the top or bottom of the screen, and so on). I would also add here *visibility* – items in students' games can be made visible and invisible in response to player action, and significance is created by making an item appear or disappear from view.
Provenance	This refers to the way in which signs are 'imported' from another context in order to signify ideas and values associated with that other context by those who do the importing, e.g. students import images from films in order to identify their game as associated with that film.
Guide rhythm	This refers to the way in which a chronology is established and pace designed, for example through the rhythm of an action, or music, or speech.

An example of the process of analysis is provided below. I describe a section of Simon's game produced in the after-school club in Cambridge. The fourth location in this game is split level, and includes a ramp, at the bottom of which the following is found:

Figure 3.16: view from the bottom of the ramp in Simon's game.

All exits in this location are blocked, which ensures that progress through it involves going down the ramp. The position of the entities creates an eyeline vector with the player perspective. The entities are made salient by being placed directly in front of the bottom of the ramp, and against a blank background. One of these entities is a first aid kit, made prominent by its height, and contrasting size and colour compared with the other boxes. First aid kits in shooter games conventionally increase the player's health levels. Boxes are also often used in games to conceal valuable resources. The eyeline vector is therefore combined with a visual reference to a common game-based process – increasing health points, and more generally providing additional resources for play. Immediately to the left of the health kit is a console. In a previous room, clicking on a console caused words to be spoken, which gave the player instructions on how to act in order to overcome an immediate challenge. Visual repetition suggests that performing the same action may cause a

similar effect – enabling what Lemke (2002) refers to as categorisation. Clicking on the console causes a written message to appear on screen:

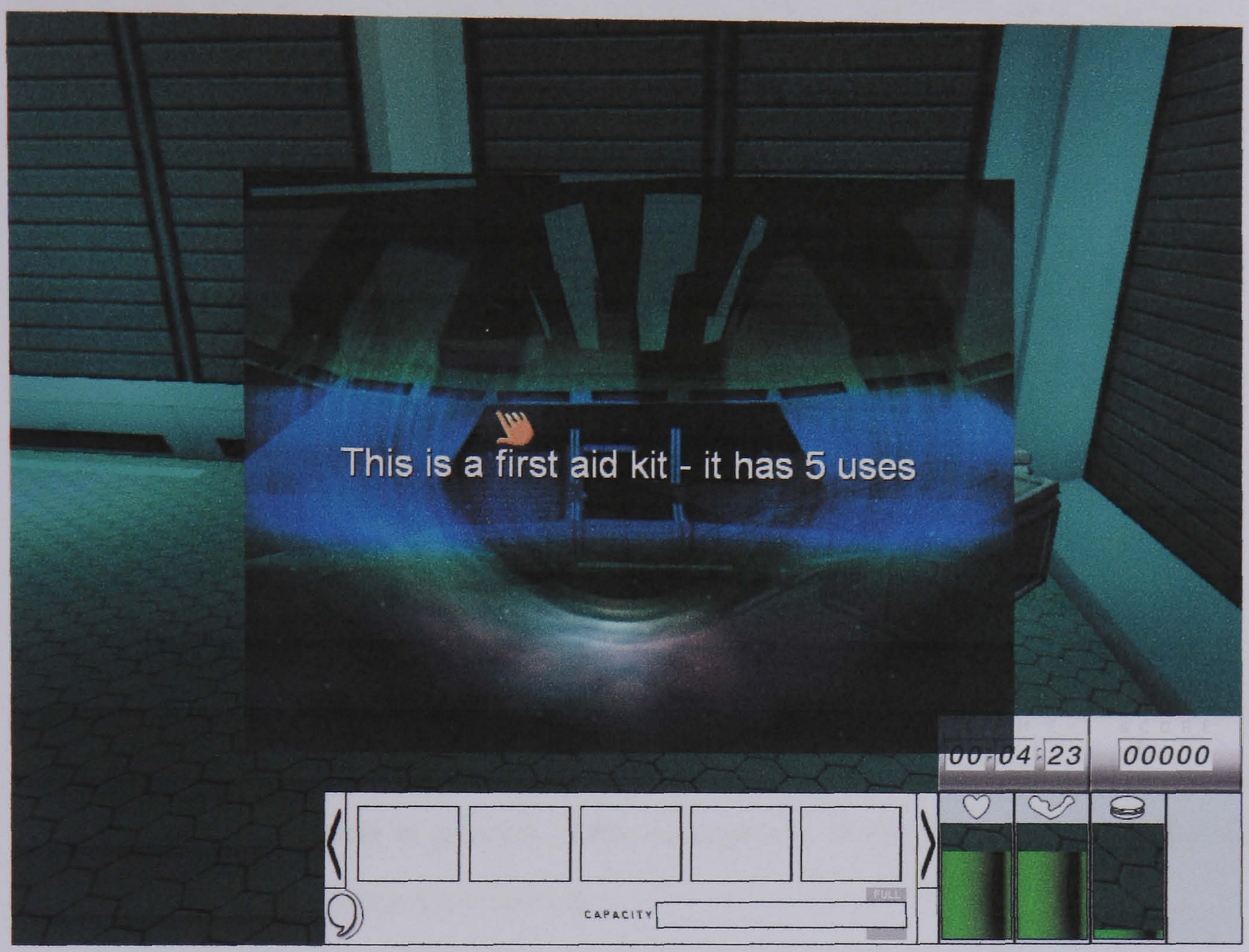


Figure 3.17: the on-screen message which appears when the console is clicked

The visual repetition of the console enables the instantiation of a classificatory process; consoles are associated with verbal or written messages which provide instructions on how to resolve proximate problems (here, what to do with the health kit). The presence of a console therefore classifies spaces as more challenging, informative or significant compared to other spaces.

The message indicates that the health kit has five uses. In the software, the 'use' button allows the player to use resources in the inventory:

Figure 3.18: the 'use' button (bottom of the screen, highlighted in blue) which appears when an item is placed in the inventory. Note the health bar (indicated by a heart) which is low and in red

Figure 3.19: Pressing the 'use' button raises the health bar

The message does not mean that the health kit has several uses, but can be 'used' five times (five presses of the 'use' button, with each 'use' worth a certain amount of health points). The kit introduces a variable into the game, which is related to the player's strategy and progress. This variable is an aspect of the game's economy, which extends throughout the game. Space is thus made significant in terms of the health points required to progress through it. Such significance is not pre-determined, but related to the properties of the challenges and the strategy and skill of the player.

One can also draw on the concept of modal functional specialisation (Jewitt & Kress 2003) to examine the choice of the written form in this scene. Writing specifies the visual entity – this specification suggests that shared knowledge of the significance of the health kit as visual object is not assumed. Analysis of successive versions of this game indicates that written messages were created later on than speech-based ones (by which I mean, recordings of someone speaking). All speech-based messages were recorded during one session, using the voice of a male teacher who

attended the after-school club once. The choice of mode here (writing versus speech) seems to relate to the availability of a particular male teacher. Writing is chosen in order to avoid re-recording speeches using a different voice, and/or using more than one voice (say, that of another teacher, who were all female). This suggests that Simon places a high value on the voice of the male teacher within his game, and values this more highly than consistency in the kind of messages generated by clicking on the consoles (given that recording speeches and creating written messages requires about the same amount of time and effort). The voice is deep in tone and slow in rhythm, and combined with the information it delivers, is suggestive of menace and power.

This analytical process is repeated throughout Simon's game, and in relation to every entity (including every rule). This enables me to specify and characterise the game so that it can be compared with others; with conventions of commercial computer games; with the pedagogic approach and social relations in the after-school club; with video footage of Simon and others playing the game; and with other documentation produced in relation to this game. On the basis of this, I can begin to describe systematically how the game emerges as an object of meaning.

The formation of subjects

In making games, students constitute themselves as particular kinds of subjects; they make themselves known as particular kinds of people. The games also constitute and maintain forms of interaction, between designer and player, spectators of the design and playing process, and between students as designers. The central question here then is: what subject positions are instantiated in the games? My focus is on the place from which the game is produced. This is indicative of the rules of acceptability for the shaping of the context in which games are made: different rules apply in the classroom compared to the after-school club for example. The questions to be asked in the analysis of the games are:

- what qualities relate to subject positions: the game author; the player; the game spectator?

- in which situation can the subject positions be taken up?
- what actions are permissible when one assumes a specific position?

These types of questions serve to clarify how students constitute themselves as subjects with their games. To answer them, I draw extensively on chapters 4 and 5 of *The grammar of visual design*, which address how images fulfil interpersonal functions (pp. 154, 170-171). I also draw on Burn and Parker (2003) who identify modality markers in the computer game *Harry Potter and the Chamber of Secrets*. The means by which interpersonal functions are realised are as follows:

Demand structures	These refer to the way in which images demand something of the viewer (an action, for example). In games, demands are placed on the player through vectors, spoken or written instructions, and so on.
Offer structures	These refer to the way in which images offer something to the viewer. In games, this may be realised through spatial positioning of items and feedback in response to actions (such as a sound playing when an item is picked up, as a reward for the player).
Social distance	This refers to the social distance established between designer and player, and is the means by which the designer adopts some kind of stance or attitude towards the player (intimate or more impersonal, more powerful or less powerful, and so on). It may be achieved for example through intonation in verbal instructions, or the design of interactions with items in the game.

Modality	Modality markers indicate the way in which credibility and truthfulness in a text are to be judged. Markers include signifiers of genre, visual design and spatial positioning.
Social positioning	This refers to how the player is positioned and constructed, and similarly, how the designer is positioned and constructed.

To give an example of analysing the formation of subject positions, I will use Nadine's game, produced in the after-school club in London. Nadine's game opens on the following screen:

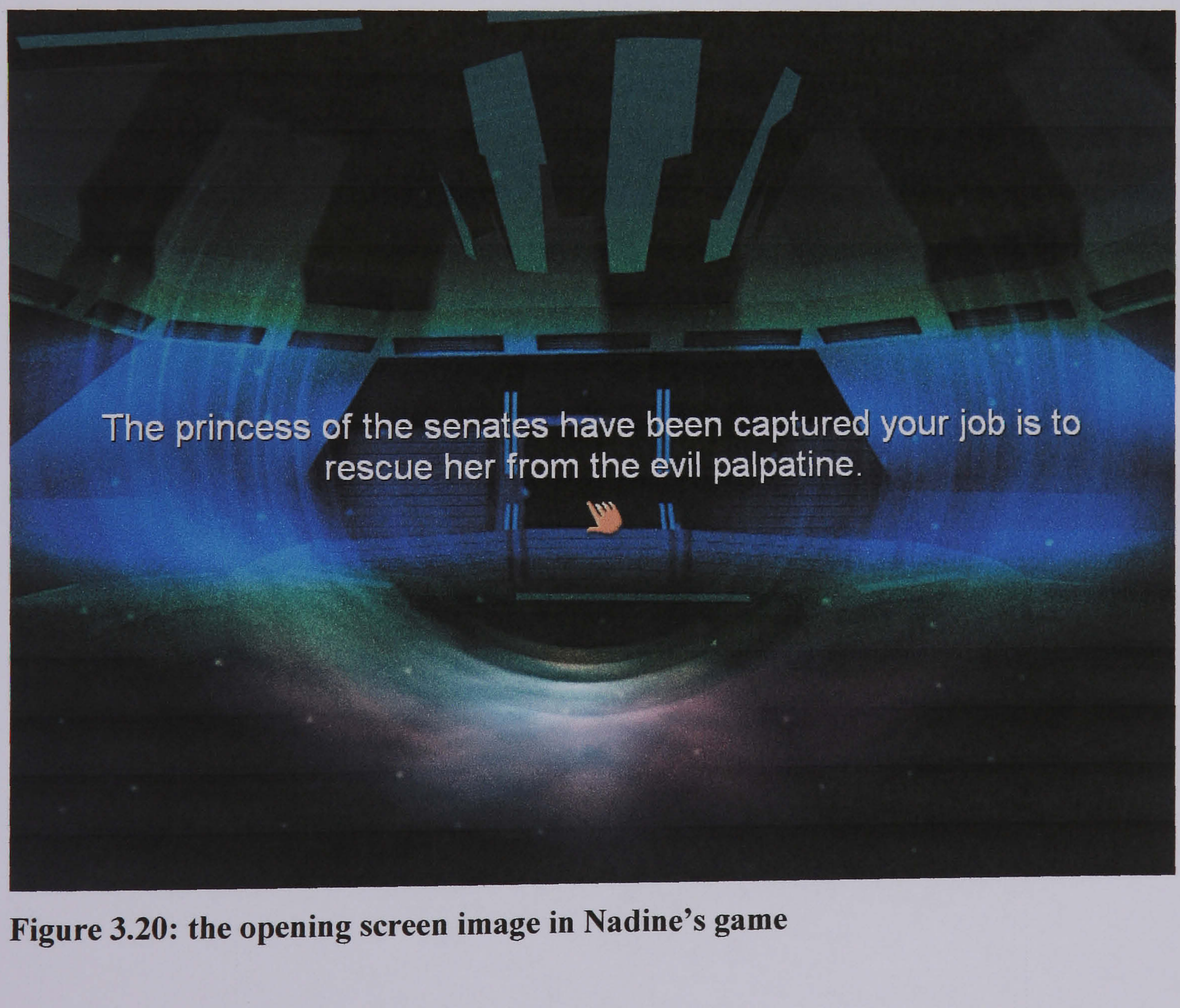


Figure 3.20: the opening screen image in Nadine's game

The 'Princess of the Senates' is a leading character in the second of the *Star Wars* films, and Palpatine an evil doer with whom the heroic characters do battle. Without

intertextual knowledge of this film, this opening message is somewhat obscure. The message positions Nadine as someone with knowledge of the films, addressing an audience with a shared interest. The player is addressed directly, and is told to be a character within the story. Such a request can only be credible among people who recognise the modality of fantasy, which involves treating a fictional world in a way 'as if' it were true. Fantasy literature and films are a prominent part of children's culture (although not exclusively); in referencing this, Nadine identifies herself with a certain social group.

The demand that the player perform a 'job' within an established narrative indicates that there are at least two ways in which the game aims to maintain credibility: as a role-playing game, and as a transformation of the *Star Wars* narrative. Allusion to this narrative are restricted to two places in the game: in the opening screen, and at the end of the game, in which images of The Princess and Palpatine appear, depending on which room of a possible three is entered. Little attention is given therefore to maintaining the credibility of the narrative through most of the game; although Nadine references an established story, her interest here is not primarily to position herself as a storyteller, or to address an audience interested in story-telling. This is also indicated in the second location in the game, shown below:

Figure 3.21: the second location in Nadine's game

There are two items in the location, both of which are highly abstract, but in different ways. The number three is an abstract number realised in material form. The pizza has a naturalistic visual modality but its position – on the floor – and lack of connection to the opening message means that it becomes an abstract entity, the signifier of an economy to be managed (hunger level, which at the start of the game is low – see hunger bar above, indicated by the hamburger icon). This abstract modality positions Nadine as someone interested and competent in abstraction, rather than visual naturalism. The role which the player is called upon to play is that of someone who can resolve abstract problems and manage abstract resources. The game is won by collecting four materialised numbers and placing them in a room. The choice of the numbers as entities seems to be motivated by Nadine's interest in drawing attention to the complex rules required to make four entities interact with each other. This complexity could only be appreciated by people familiar with the authoring software. Nadine addresses members of the game club in their capacity as

designers rather than players; she positions herself as competent and interested in the abstract thought involved in designing games. This suggests that reference to the *Star Wars* narrative is designed to emphasise her knowledge of game genre conventions (many games are based on films) rather than necessarily her interest in the story *per se*, although the two possibilities are not exclusive.

The construction of the relationship between designer and player can be examined in a way which is somewhat analogous to the analysis of turn-taking in language-based discourse analysis (Fairclough 1992). To analyse how games sustain interactivity and make space for player action, one can ask: which opportunities are created for player intervention; how are the player's responses anticipated and controlled for? At the start (Figure 3.21), there are four possible forms of intervention. The player can either click on the number 3, on the pizza or ignore both and continue along the corridor, or go backwards. The range of possible actions is therefore restricted by the number of entities with which the player can interact, with each possible action matched to a response: collecting entities increases resources, moving backwards shows the opening message again, moving forwards triggers another message to flash up.

This analysis becomes significant by comparison with analyses of other games, since the range of subject positions, with respect to authors, players and others, becomes visible, as well as how they emerge in relation to each other. Comparison with other documentation also highlights the way in which subject positions produced with games relates to subject positions produced with other kinds of activities, such as homework tasks or interviews.

The formation of concepts

I use the next two categories of analysis in Foucault's framework to extend my analysis of objects and subjects, rather than to examine further dimensions of the games.

According to Howarth (2000), in analyzing the formation of concepts, Foucault focuses on the logical relations between statements, such as rules of inference; rules which define whether or not classes of statements are to be accepted or excluded; and rules constituting procedures of intervention. In this thesis, such questions might be phrased as follows:

- why does a game actualise a particular concept and not others?
- how do concepts organise and connect games?

These questions are useful in tracing the production history of a game. In the classroom and in the after-school club, successive versions of students' games were stored, at the end of each session. This means that the development of the game can be traced, usually hour by hour. By analysing the formation of objects and subjects for each successive version, it is possible to establish the principles which shaped the game's development. This approach has proved particularly useful in analysing the games made in class. Here the purpose of game production was to teach particular concepts: narrative, economy, and rule. It is therefore possible to analyse how games instantiated such concepts as the course developed and in response to pedagogic activities. It is also possible to establish how they instantiated other concepts, such as play and interactivity.

The questions are also useful in comparing games across the sites of production, analysing how they actualise concepts such as 'game', 'play', 'player', 'student' and 'designer'. I also use them to compare data in different modes. In Chapter 4, I analyse how the concept of narrative is actualised in a game and a piece of written homework, arguing that the game reinscribes the rules for actualising a concept of narrative in writing. In Chapter 5, I compare how concepts of gender are actualised and reinscribed in talk, drawing and game.

The formation of strategies

Strategy is about rules of selection for the completion or actualisation of the rules of acceptability (Andersen 2003). Here I address the strategies pursued in the formation

of games and subject positions, as they emerge in relation to each other. Each context of discursive production can be conceptualised as a field of 'operational possibilities' (Foucault 1968), although such possibilities are not unique to that context but characteristic of broader social processes, for example gender difference or pedagogic relations. There are many different ways in which games can be constituted and subjectivities established. Their actualisation is a strategic decision and is interdiscursive. This process involves competition between subjectivities, but also mutual constitution. Comparing the strategies pursued highlights the system of difference and dispersion.

In Chapter 4, I compare the strategies pursued by students in class in the penultimate week of the course with earlier work, and focus on two pairs of students who took different approaches to making games for their fellow students and the teacher. This highlights the field of possibilities for realising certain genre conventions in the classroom, as well as how students positioned themselves in opposition to each other within it. In Chapter 5, I compare how students produced themselves as gendered, which suggests the field of possibilities for being gendered in one setting.

Writing up the analysis

Although the analysis consists of systematically addressing questions relating to the formation of objects, subjects, conceptual networks and strategies, the writing up is organised around questions which relate all of these facets. I do not write about each formation separately, since they are distinguishable conceptually and cannot easily or purposefully be described separately. The chapters are organised around questions, which are answered by taking all of these aspects into account.

Conclusion

In this chapter, I have described the way in which materials constituted as data in this thesis were initially collected as well as the research questions they answered in the primary study. Epistemological considerations raised by secondary analysis were

discussed, and my choice of approach justified in relation to my theoretical interests as well as the evidence available to me in constructing an argument. The re-configuring of materials to generate data mean that re-signification is not only a theoretical concept in this thesis but also a methodological practice. I have crafted the data on the basis of available materials, and in the light of my research question. The software was described in terms of a restricted semiotic resource; by restricted I mean that it allows for the making of texts in specific ways, with such restrictions conceptualised both logically and semiotically. The texts produced with the software have been analysed by combining two frameworks. Foucaultian discourse analysis aligns and makes empirically operational the semiotic and social theory presented in Chapter 2, and enables me to treat semiotic analyses as the indicator of subjectivity. Multimodality theory provides distinctions to analyse data constituted by culturally-shaped materialities. I have described how I understand such distinctions to operate and manifest themselves in students' games.

The next three chapters put this analytical strategy to work, to investigate learning as meaning-making in the empirical domain. I begin with a comparison of the principles of design in three sites of research.

CHAPTER 4

A COMPARISON OF THE PRINCIPLES OF GAME DESIGN IN THREE SITES OF PRODUCTION

In this chapter, I compare the principles by which games are designed within and across three sites of production: an English, Media and ICT classroom, an after-school club, and students' homes. These three sites are understood to consist of configurations of social and semiotic resources, including material equipment, time, and points of authority. My argument is that the way in which a game is designed is a function of such resources. More specifically, I focus on how games shape social relations within the sites by situating their authors in particular ways. In looking at the *principles* of design, my aim is to examine the basis on which students' semiotic arrangements are recognised as a game. What counts as a game is thus understood as a situated judgement as opposed to a set of formal attributes.

The purpose of comparing three sites of production is to investigate the conditions of possibility for authoring games in different contexts. As I argued in Chapter 2, context is understood to consist of conventions, or social norms as Butler (1997) describes it. Such conventions are produced and re-made in relation to points of authority. The purpose of comparing the re-making of such conventions *within* each site highlights the strategies pursued in making texts in relation to points of authority. Each context sustains particular approaches to textual production; within each context, students pursue different strategies for establishing themselves as game-makers. Broadly speaking, the analysis which follows suggests that in the classroom, game-making is predominantly concerned with demonstrating understanding of concepts, notably narrative. In the after-school club, students position themselves as types of game players. At home, game-making displays a kind of specialist expertise to parents or sustains game play.

The argument made in this chapter challenges certain assumptions in the policy-oriented literature on games and learning. As I argued in Chapter 1, this literature tends to make a distinction between form and content. Games are conceptualised as a form: an interface, a particular kind of appearance, or a set of formal attributes. The importance of context is not disregarded, although context is defined as an extension of form; attention is given to the activities and social interactions which surround games, but such activities are defined as a property of games. The educational value of games is defined in terms of forms (as a set of formal attributes) which sustain activities (problem-solving, collaborative working, and so on). It follows that games are said to promote learning when such forms are attached to educational content. This logic is not uncommon in the literature on educational technology, where matters of form are sometimes discussed in terms of 'affordances' (Oliver 2005). It underpins beliefs that informal or business-oriented learning technologies should be brought into the classroom to make education more motivating or efficient (Buckingham in press; Cuban 1986, 2001). My point is not to wholly dismiss such beliefs, but to question the premise that forms are separable from the meanings they have in social practices. I do not argue *against* the claim that games cause social activities; however, the purpose of my argument in chapter 2 was to highlight that practices shape form, or more precisely, that form is made to realise meaning in situated activities.

On the basis of my theoretical framework then, games cannot be defined on the basis of form. This is because how 'game' is signified relates to context. The analysis that follows focuses on how students signify 'game', with differences in the sign 'game' justified by the meanings which students seek to produce.

One alternative to conceptualising games in terms of form is to conceptualise them in terms of meaning. I stated in Chapter 1 that Gee's (2003) argument about games and learning is based on a distinction between good and bad games. Good games make for active, critical learning. The logic of this argument is that meaning is an attribute of games; games cause certain meanings. Again, attention is given to

context; this is discussed in terms of social practices, or communities of practice. However, in this argument, practices are conceptualised as an extension of meaning – in other words, such practices derive from the nature of games. This logic is apparent in Gee's discussion of affinity groups, which he understands as social constituencies largely devoid of hierarchies or conflict, or points of authority, brought together and assimilated by the unity of games as objects of meaning. As communities of practice, however, games do not sustain one set of practices (or one set of meanings), but many different kinds of practices, and practices identifiable as such in their opposition and contrast with other practices as well as internal differences. In the analysis which follows, I highlight that the way in which students make sense of games is a function of social strategy in context. It follows that games do not have inherent meanings, since they are signified differently in different contexts.

This chapter thus highlights that the connection between games and learning should not be understood in terms of the meaning of the form, but rather the signification of 'game' in context.

The chapter is organised into four sections. Section 1 examines the principles of design in the classroom at the Cambridge school, section 2 focuses on the after-school club at the Cambridge school, and section 3 on the games made at home by students from the Cambridge school and the London school. The conclusion reviews the significance of the analysis for conceptualising the relationship between games and learning.

Section 1: Principles of design of the games made in an English, Media and ICT class

In the second year of the Making Games project, researchers collaborated with the English and Media teacher at the school in Cambridge to devise a course focused on game production for a year 8 class. The teacher had been teaching computer games

as a topic in Media Studies for a number of years and our aim was to integrate production work into this existing course. This was organised around a number of concepts, namely computer game audiences (fan communities, constructions of audience pleasures), institutions (companies, regulatory bodies) and texts (particularly those based on stories with a cross-media market such as *Harry Potter*). To inform production work, we decided to focus on computer games as forms of texts, and to describe these in terms of narrative, rules and economies. Game-making was thus justified in terms of developing conceptual understanding. The purpose of asking students to make games was to enable them instantiate general concepts in their own texts, to produce texts in order to develop forms of understanding which had a broader application.

The course consisted of nine 50-minute sessions, which took place over five weeks. The year 8 class comprised 29 students, of mixed ability and gender. In their production work, students were asked to work in pairs due to limitations in the number of computers. Despite our initial request, pairs frequently changed which meant that games were developed from week to week by different people. When authorship is attributed in this chapter, I draw on the games' file names, observational field notes, evidence from audio recordings and video footage, and students' written homework.

One of the characteristics of classroom-made games is that they achieve a kind of textual unity across different pedagogical processes. Game-making was one of several activities, which were not intended to be distinct but precisely build on from each other. The material, semiotic resources used to teach 'games studies' were thus inseparably intertwined with 'what is to be learned'. I describe a number of instances of this below.

The first relates to the way in which written narrative, as mode and genre, shaped students' game-making. My argument is that writing served as an organizing principle in students' approach to game design. A number of theorists have noted

that writing remains the predominant symbolic form in schools. Kress (2003a) argues that writing is the most prestigious and powerful mode in classrooms. Buckingham *et al* (1995) state that media studies in schools emphasises the written as the site where conceptual understanding is demonstrated. It seems that in class, designing games according to principles of written narrative was a strategy for aligning oneself with indicators of social value as points of authority. This however needs to be understood in terms of the introduction of the authoring software into this specific classroom, difficulties with which meant that it dominated the course, making attention to teaching 'concepts' difficult. A much more explicit comparison between written and game-based narrative was made by researchers and the teacher precisely in order to bring some focus to production activities.

The second instance concerns the use of headphones in class, which were deployed in order to manage noise levels. Headphones were issued when students were asked to introduce sound into their games, as an aspect of game-based narrative. My argument is that in class, headphones were used to create a private space, in counterpoint to the public space of the screen. The contrast between a public and a private space is justified in relation to the teacher's and researchers' gaze, which surveyed the class but rarely engaged with the aural aspect of games, precisely because headphones impeded this. However, it is not the case that sound simply became a space in which students 'resisted' points of authority. Rather, with sound, students positioned themselves in relation to each other with respect to authoritative gaze, and did so differently, depending on their social purpose in the classroom.

Producing narrative in writing and game-making

In the first session of the course, students were asked to define games and identify some characteristic components – rules, aims, challenges and so on – with special focus given to the function of rules, and the way in which they enable and constrain play. Students played noughts and crosses and were then asked to comment on the characteristics the game included and excluded, and how this generated pleasure and

desire to play. Following this initial introduction to key concepts, the second session was dedicated to introducing the software, with students asked to make maze-like environments. The intention (from the teacher's and researchers' perspective) was that these could serve as backdrops to the subsequent development of rules and narrative. Students made large environments, consisting of numerous locations:

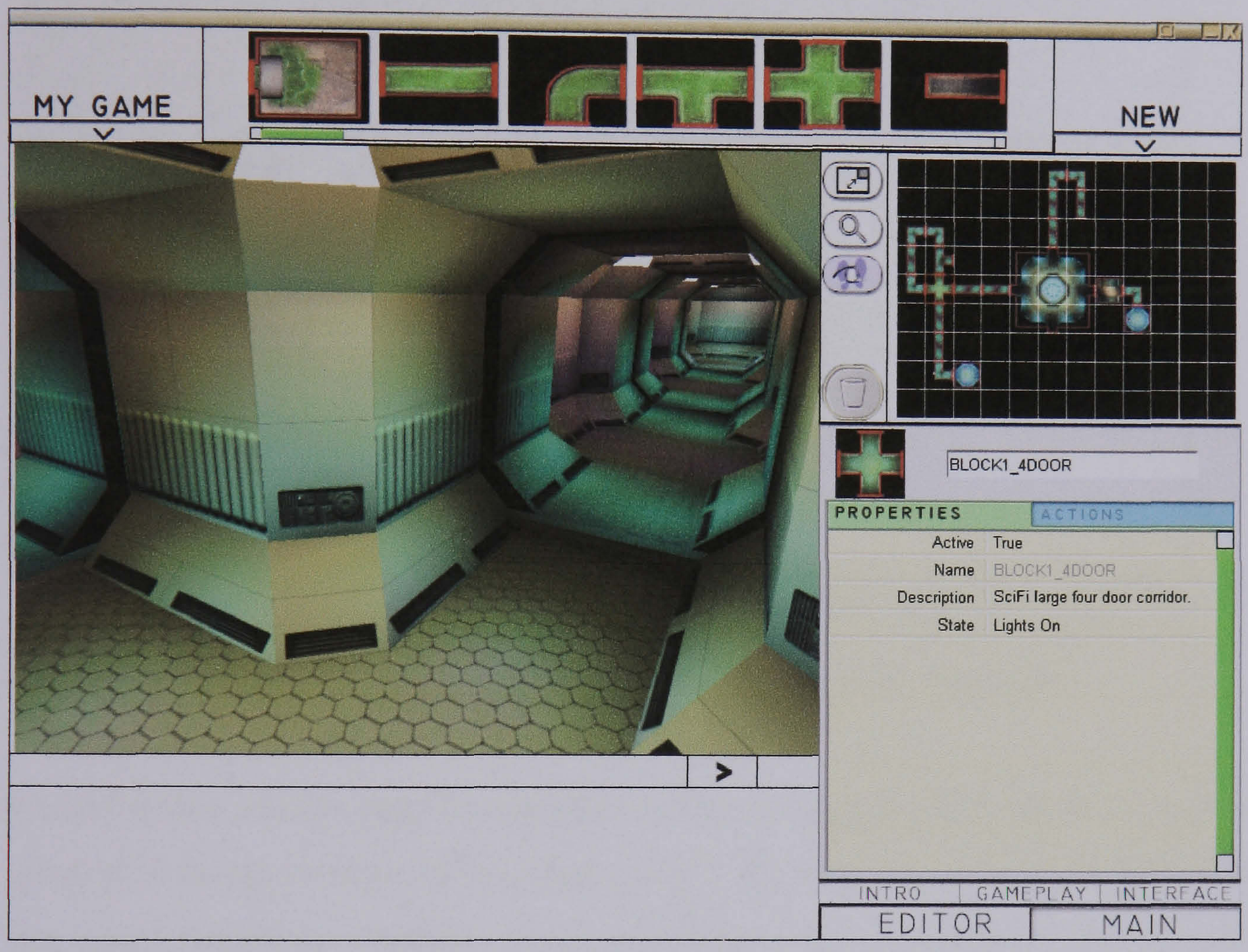


Figure 4.1: Lucy and Jo's game in session 2. The 'map' view is in the right hand corner. This shows the size of the game.

A third session was intended to highlight differences in the narrative structure of games, films and novels: the representation of the same event from the Harry Potter franchise was examined in the book, the film and the game. In the fourth session, students were asked to make a game based on a Dr Who scenario, in which he arrives on a spaceship and is assigned a mission – with students then asked to develop this storyline, but to include at least two rules.

The games made in session 4 tend to consist of large environments, numerous props, and few rules:

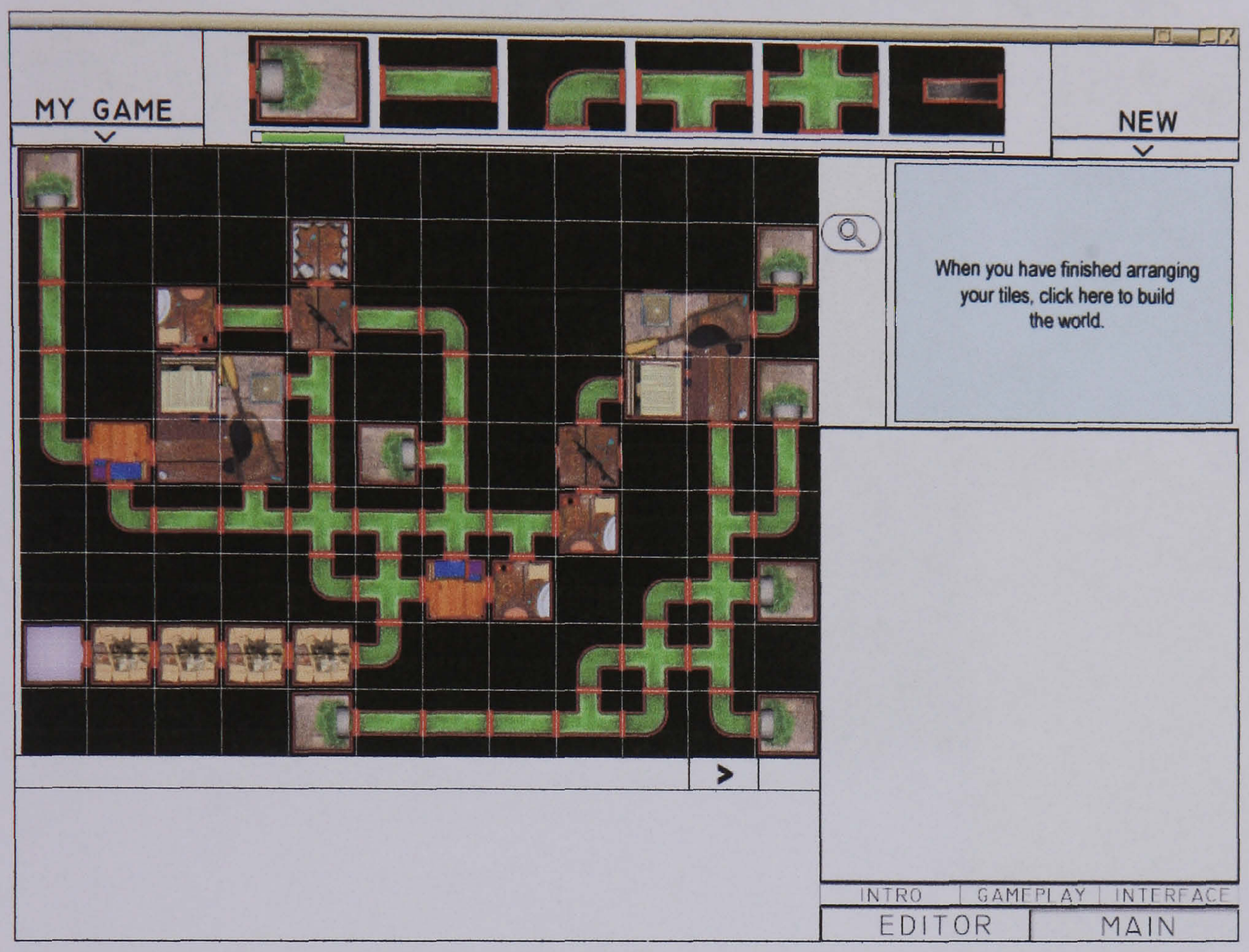


Figure 4.2: Mick, Alf and David's game in session 4, in map view

I noted in this session that this spatial composition meant that students were prone to get lost in the environments they had created. By using locations with several exits, the same locations multiple times and repeat or symmetrical patterns in the arrangement of locations, a loss of direction was produced. Pleasure seems to be taken in excess and repetition – the same prop is often used multiple times:

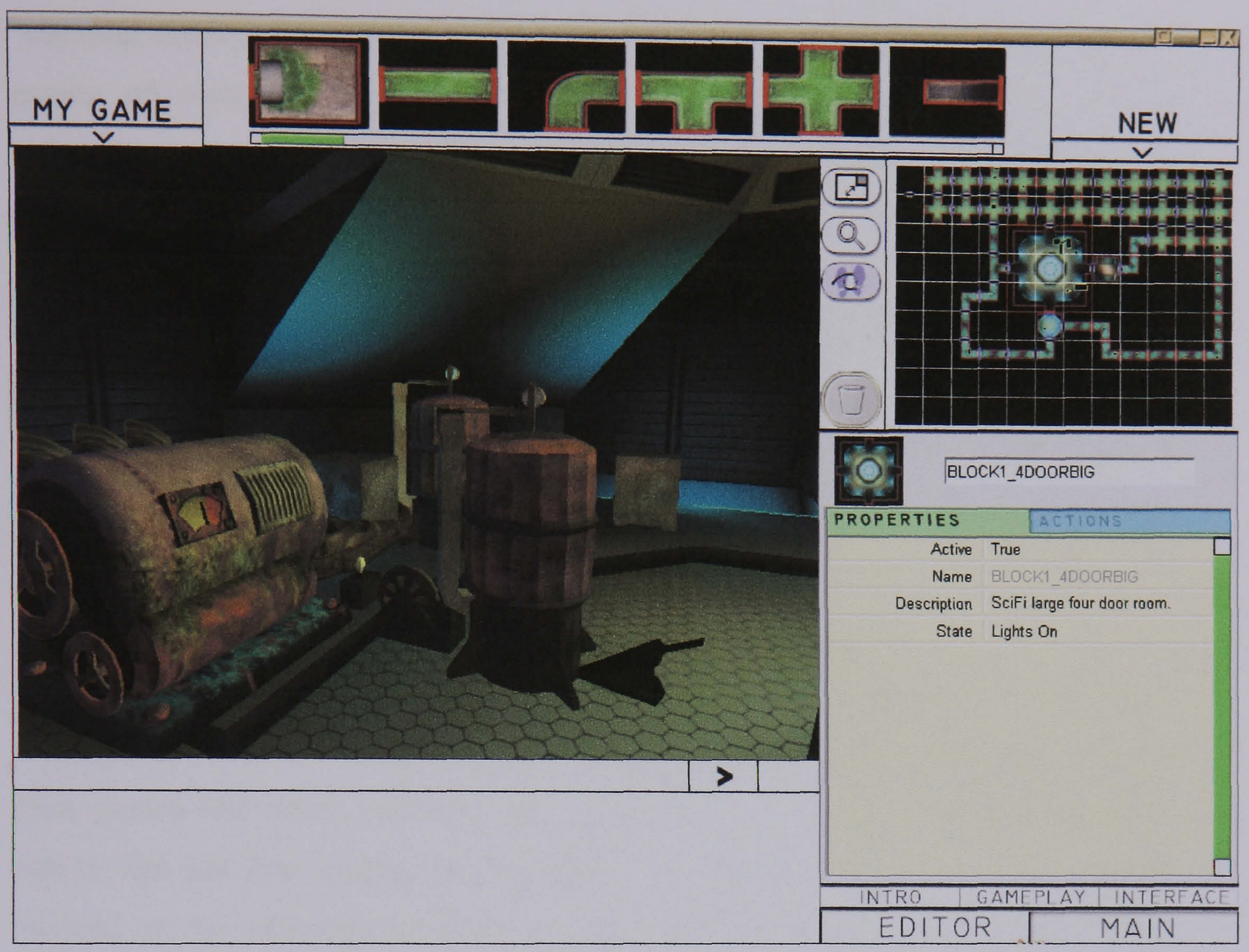


Figure 4.3: Game saved as 'Klapominlklwsza' in the fourth session, with the map view in the right hand corner. One location contains the following props: two safes, two pumping machines, one generator, one sarcophagus, one turntable. Across the game, there are also 12 elevators.

Emphasis is placed on visual richness, colour, quantity, and the bewilderment of perceptions. These can be understood as modality markers which establish a sensory coding orientation, "used in contexts in which the pleasure principle is allowed to be the dominant: certain kinds of art, advertising, fashion, cooking, interior decoration, and so on" (Kress & van Leeuwen 1996: 170). 'Game' is here signified in terms of visual, visceral excess, a signifier which could be said to stand in opposition to more distant, abstract or academic forms of engagement (Kress & van Leeuwen 1996: 170). A comparison can also be made with Caillois' (1967: 47) game classification system, in which games classified as *ilinx* are those intended to bring about

"physical confusion and helplessness"[1]. Games in this category are contrasted with games of competition, chance and mimicry, and characterized by physical voluptuousness rather than rules; this suggests that the games here are textual equivalents of swings and playground roundabouts. Motive here can be understood in relation to the software as a semiotic resource associated with games as genre of play: students are making games which they themselves can play, rather than positioning themselves as makers of games for others to play. There are a number of ways of interpreting this, but this way of positioning themselves in relation to use of the software can perhaps be understood in terms of the fact that no-one else, in this setting, would play their game.

Games made in session 4 were interpreted by myself and the teacher as somewhat of a distraction from the key concepts which the course was intended to cover: rule (few games had rules), narrative and economy (as some kind of unifying thread which was not just logical, but textual). Consequently, in session 5, the teacher showed on the whiteboard a story he had written featuring Dr Who, and a game which realized the story in game form. The story involved finding the right key (among several identical keys) which would open a pirate chest, containing a CD disk on which codes were inscribed, with such codes necessary for a further sequence of actions. Narrative is realized, then, in the teacher's game as a linear sequence of events. Students were then asked to make a game, using two locations only, and which told a story based on Dr Who. In session 7, the teacher showed his game again, and re-iterated that students should make games with two locations only and minimal props.

Games made in the fifth and subsequent sessions demonstrated some of the principles which the teacher had shown and discussed. For homework in session 6, students were asked to write the story of their game.

---

[1] My translation. Ilinx games include funfair rides, turning rapidly round and round on the spot, going on swings, and so on.

Over the next few sessions, a great variety of games were made, but there are patterns. No single game is representative, but I will focus on a game signed 'Tom', in part because he also submitted the homework assignment for session 6, which provides insight into his game's design[2]. Over sessions 6 and 7, a game with the file name 'Tom' was made, consisting of two locations divided by a locked door. In one of these locations, a robot is situated in front of the door, and in between five identical levers on either side:

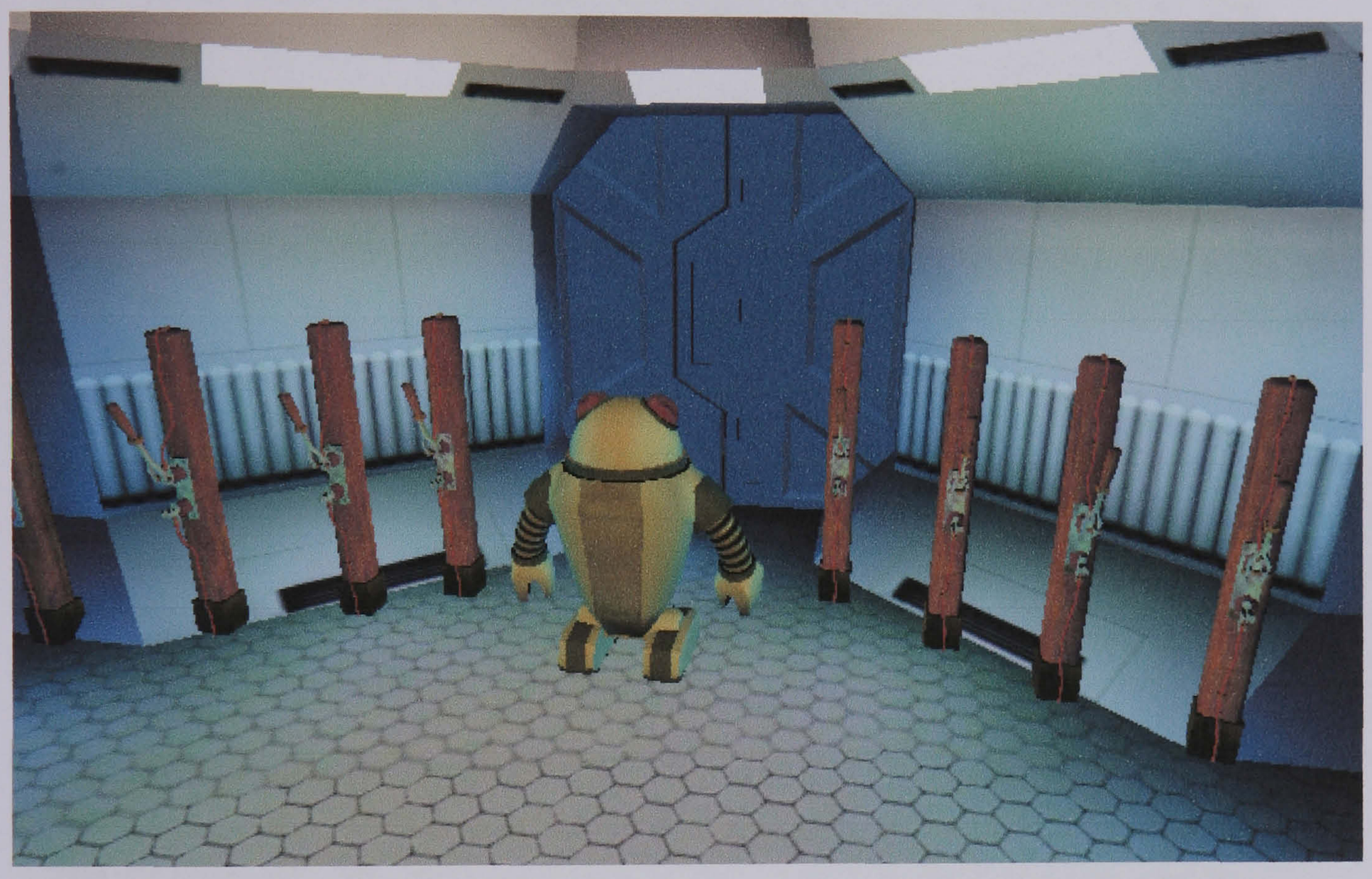


Figure 4.4: First location in 'Tom's' game, with electric switches on the left and the right and the robot in front of the door.

Clicking on the correct switches opens the door and causes the robot to move forwards into the second location.

For homework after session 6, Tom wrote the following assignment:

[2] I make the assumption that the game saved as 'Tom's game' and the homework labeled 'Tom's homework' are related, although this does not exclude the possibility that other students worked with Tom in making the game

My Game

When the doctor is on a search for a mystic item of great power when he gets mysteriously teleported into a room, the doctor is facing a control panel he presses a button on it and a message beams up in front of him, he reads it "Press the 2 electric switches and try and take the robot with you through the doors, then talk to the other control panel."

He looks around the room and sees 2 sections with 5 electric switches in each, he tries the far left one on the left side first... nothing, and next he tries the one on the right of that... still nothing. He tries all the ones on that side until he gets to the last one he pulls it and the doors open up.

He then remembers he needs to take the robot through so he pulls the electric switch closest to the door on the right side... nothing, and then he tries the next one... still nothing, and then he pulls the next and the robot walks really fast through the door and when he gets through the door he stops and starts to jump.

He walks over to the other console and another message pops up "fix the generator, and there should be a message inside." He walks up to the generator and eventually fixes it, a message falls out of the machine, he reads it "Get the three keys out of the three chests and then and only then you may enter the secret chamber. He walks around the room and finds the three chests, he opens them and then he walked into the secret chamber, he then finds the four crystals he was searching for, he picks them up and gets transported back to his ship.

Excellent - the story and game work very well together, and you explain them effectively, adding some nice touches.

Tom's game involves the kind of visual repetition which also characterised the games in the first four sessions of the course; the same lever is used ten times in one location. However, this is no longer justified primarily in terms of excess and physical dizziness. Rules are written for two of the levers: one to open the door and the other to move the robot. This sets up a problem to be solved, and establishes an order by which the space may be explored. The arrangement of this order seems to be justified in Tom's writing.

In the game, spatial organisation means that the switches can be clicked in any order. The proximity of the door to the levers, and the absence of any other entity, is a strong indication that the levers are keys of some sort. Although visual repetition of the same entity makes the space between the levers temporally significant, spatial contiguity means that it is possible to click on all the switches, assuming that one or two of them will open the door. What is it then that makes a sequence of levers and a locked door into a puzzle, or under what condition are these levers, and the rules with which they are associated, signs of game?

In the written narrative, the multiple switches create suspense. The three dots preceding the word 'nothing' indicate a temporal pause between a cause and its hoped-for effect. The door opens after two attempts are described individually and three more attempts grouped into one sentence; this creates tension and avoids repetitive, bathetic phrasing. The same three-step sequence is reiterated in order to move the robot, ordering the attempts into two halves of one process, linked by the conjunction 'and' in the first paragraph. The written narrative is an account of a problem being solved. It seems plausible to argue that the game is an illustration of this account. What signifies the set of levers and the locked door as a puzzle to be solved and a story to be told is the written homework assignment, rather than the arrangement of the game per se, in which the lack of temporal restriction and spatial contiguity undermine the 'problem' of finding the right lever.

In the written story, the sequence of levers not only establishes a suspenseful rhythm but also sustains characterisation. The sequence is split into two halves, left and right. On the basis of this, the doctor presses the switches on the left first and then 'remembers' the switches on the right. A mental process is thereby attributed to the doctor, which serves to create character by illustrating an identifying trait: forgetful, distracted, a little like Dr Who. In the game, spatial composition also splits the sequence of levers into two halves. The starting position is situated directly behind the robot; had it been placed in one corner of the room, the line of switches might appear unbroken rather than divided into two equal halves. The choice of the starting point in the game, and the spatial arrangement of levers in a line, can thus be understood with respect to the written narrative, and the importance of the right/left distinction. Prior to this session, the repetition of visual elements did not tend to be organised into ordered, linear sequences; items were instead piled next to or on top of each other, to create new patterns out of the existing entities. The creation of an ordered sequence of identical levers seems to relate to Tom's effort to realise principles of written narrative in game form.

The written story includes various stages of the genre of narrative, as described by Labov (van Leeuwen 2005): there is an abstract (an indication of the topic) and orientation (an introduction to the setting) in the first paragraph, complications in the remaining paragraphs, evaluations provided by the choice of a popular character and description of his mission, and final resolution. The game focuses almost exclusively on the complications, with the following message flashing up at the start of the game: "Take the robot to the next room and talk to the next console". The message does not evoke a narrative setting for such actions, but issues instructions on what to do. The purpose of such actions is explained in the written story.

To use Barthes' (1977) term, one could argue that the written narrative provides anchorage for the game – the words (in the homework as well as within the game) make the meaning of the spatial and visual composition more specific. Anchorage implies the co-presence of the item which supplies the 'anchor' and the anchored

item; the two items are co-present only from a certain perspective, as items submitted to the teacher (students did not show each other their stories in class). The written narrative provides characterisation, clarifies the enigma to be resolved, and explains how the sequences of actions relate to each other. Tom does not tell a story by drawing on narrative structures found in spatially organised modes or the genre of games (which cannot attribute mental processes to the player). Rather, the game illustrates the themes and structures of his written narrative, for the benefit of the teacher as point of authority.

Tom's written narrative is also shaped by the process of game-making. The doctor arrives looking for 'a mystic item of great power', but leaves it with 'the four crystals he was searching for'. This substitution in the written text is explained by the demands of the visual mode to be more precise about what is to be represented (Kress & van Leeuwen 1996). In the game, the notion of 'great power' is represented through the choice of an abstract hexagonal object, four of which are laid out[3].

However, the relation between game and narrative is one of exemplification (van Leeuwen 2005): the game exemplifies a concept developed in the writing. This approach seems to explain the particular characteristics of games made in the middle section of the course (sessions 5-7) which are often organised to sustain a linear sequence of actions, the justification for which is elaborated in written homework rather than made in the game itself. One explanation is that the written form has a higher aesthetic valuation in this site. Bourdieu (1979; see also Bennett 1996) argues that aesthetic judgements are forms of social action, with forms of classification, valorization and institutional use inscribed within, and articulated across, different social fields. In schools, writing has a particular institutional use; it is where knowledge is understood to reside, and where ability is usually assessed (Kress

---

[3] The written narrative is shaped by the process of game-making in other ways too; the objects referred to in the written narrative are based on the software: the levers, the robot, and so on. However, my focus is on how these elements have been organised into a text, into some kind of organisational unit, rather than on their presence.

2003a; Hodge & Kress 1988). Although media studies as a discipline challenges this hierarchy of symbolic forms, it has struggled to establish equivalence between them, because of other practices within schools (Buckingham *et al* 1995). Analysis of the development of students' games over the first seven sessions of the course suggests that this is not simply a matter of political resistance by teachers to more popular textual genres. The teacher here had taught film as a textual genre for many years. However, the introduction of a new semiotic resource destabilised principles of recognition according to which semiotic designs could be legitimised as signifiers of 'narrative'. In the first few sessions of the course, students and the teacher/researchers worked with different conceptions of what counted as a game and game narrative. The homework assignment, and demonstration of the Dr Who game and story on the whiteboard, established norms in respect of this – they indicated what would count as narrative in a text produced with the game-authoring software. From this perspective, Tom's game can be understood as a strategy to produce himself performatively as a good student, with valid knowledge (because it is) in a legitimised form in the setting. The predominance of writing as a mode and principle of organisation can perhaps be understood as a fallback position in the wake of new textual practices for which principles of recognition had not been established in the classroom; writing is used to impose order on what appeared highly disordered texts. The teacher's written story of Dr Who indicated how narrative, as a set of well-established, socially valued conventions in the written mode, was manifested in a game. This extended the legitimacy of writing narrative as a textual practice to making games as a textual practice, by positioning the latter as an illustration of the former.

Games by Dave & Helen and Frank & John – designing counterpoint structures with sound

One reason for defining context as a set of social and material resources is to note how such configurations change over time. In the penultimate week of the course, students were asked to finish off their production work, in order to be able to

dedicate the last lesson to playing each other's games. They were also shown how to include sounds in their game, and given headphones. A number of students used sound as a counterpoint structure in their game; by counterpoint, I mean that the arrangement of sound was set up as a contrast to visual signifiers. This is demonstrated in Dave and Helen's game.

Dave and Helen had developed the same game over several sessions. This consisted of a sci-fi environment containing a number of levers which could be clicked to drive a robot forwards. In the penultimate session, they attached sounds to each lever[4]. These sounds included the mooing of a cow, the crowing of a cockerel, and the bell chimes of a church. The aural and visual landscapes are in contrast with each other, the one associated with futuristic time travel, the other with pastoral existence. This makes the sounds into aural jokes – they are humorous because they undermine the expectations set by the visual design[5]. Van Leeuwen (2005: 277) describes this type of linking as an 'adversative extension', in that information is added in counterpoint to other items of information.

I observed in class that the teacher rarely put on headphones when examining students' games. This was because of the need to remain aware of the activities of the class as a whole whilst working with individual students. Similarly, my attention was given to rule-writing on screen, which meant that I did not wear headphones, as sounds in students' games are only emitted in 'play' mode, rather than 'design' mode[6]. In class, then, headphones created a dimension of the visual space which remained largely out of view, and which became 'visible' only when students played each other's games.

---

[4] By 'attach', here, I mean that in their rules, sounds were triggered to play when a lever was clicked.
[5] This kind of juxtaposition is not unusual in comedy with a science-fiction setting. The 2005 film of *The Hitchhiker's Guide to the Galaxy*, based on the book by Douglas Adams, uses a similar technique, and it can also be found in *Dr Who*.
[6] These terms are explained in Chapter 3, section 2. Play mode is brought about by pressing the 'play' button in the software, which effects the rules written in 'design' mode

In the same session, Dave and Helen wrote a new introductory message in their game: "Last night was great. The morning after - not so good. It's times like these when you wake up on an unknown spaceship, completely bereft of food, bedding and alcohol, that you wish you'd rejected that last Carlsberg your mate offered you...". The previous message was however also retained but made to appear subsequently: "Welcome to the spaceship Heart of Gold. The self-destruct program has been activated. You have a short time before the ship explodes. Enjoy your brief (and possibly terminal) stay!". The dramatic tension of the original storyline is satirised by turning it into a common situation ('its times like these') associated with illicit behaviour rather than heroic values.

Both the sounds and the new opening message were introduced when the class was told they would play each other's games. They seem to be intended for a different audience to that targeted previously – other students, as opposed to the teacher. When Dave and Helen submitted a 'final' version of their game at the end of the course, they removed all sounds and the additional written message; the humourous, satirical elements were stripped out and the game they had completed two sessions earlier was handed in.

This layering effect is found in some computer games, which enable players to 'unlock' new (sometimes illicit or humorous) resources upon completion of certain tasks. A number of games, notably the highly popular franchise *Grand Theft Auto*, have received press coverage for 'hiding' material to avoid 'Adult' ratings, material which is then made viewable by downloading modifying software programmes (see BBC news web site 'Hidden sex scenes hit GTA rating', 21st July 2005). Dave and Helen re-fashion this convention of game textuality on the basis of classroom relations, by using equipment necessary to manage the class (headphones). The effect of having 'unsuitable' or rarefied content is achieved by satirising and undermining the seriousness of earlier work, and 'hiding' it from the teacher in order to increase its value with other students. In other words, the counterpoint structures function as modality markers, which position earlier versions of the game as 'work',

in contrast to 'play'. Sutton-Smith (1997) argues that institutional settings characterised by a strong work ethic have tended to define play as 'not-work' – play is established as a point of contrast rather than a specific activity[7]. The design strategies adopted by Dave and Helen prior to the penultimate session are *retrospectively* constructed as 'work', in order to signify a new intended audience – other students. My point is that this audience is signified in differentiated relation to the teacher. In other words, students address an audience which only exists as a social relation characteristic of classrooms.

Another game produced in the penultimate session adopted a similar strategy but positioned the authors very differently. Frank and John's game consists of a medley of entities, selected on the basis of incongruity: a couple of fez hats are placed on top of a robot, a match is placed on the floor on a different scale to all the other items, mines and bombs are stacked up alongside skulls and rats – the sheer number of items multiplies the demand structures and thus obscures the playing path, or what it is that the player is meant to do to stop the spaceship blowing up:

[7] This definition of play, in Sutton-Smith, is characteristic of the 'rhetoric of frivolity', a rhetoric of play which identifies play as subversion and nonsense, the opposite of seriousness. This definition constructs work as obligatory, sober and not fun, with play its mirror opposite. The duality of work versus play, Sutton-Smith argues, derives from the urban industrial view of work and time

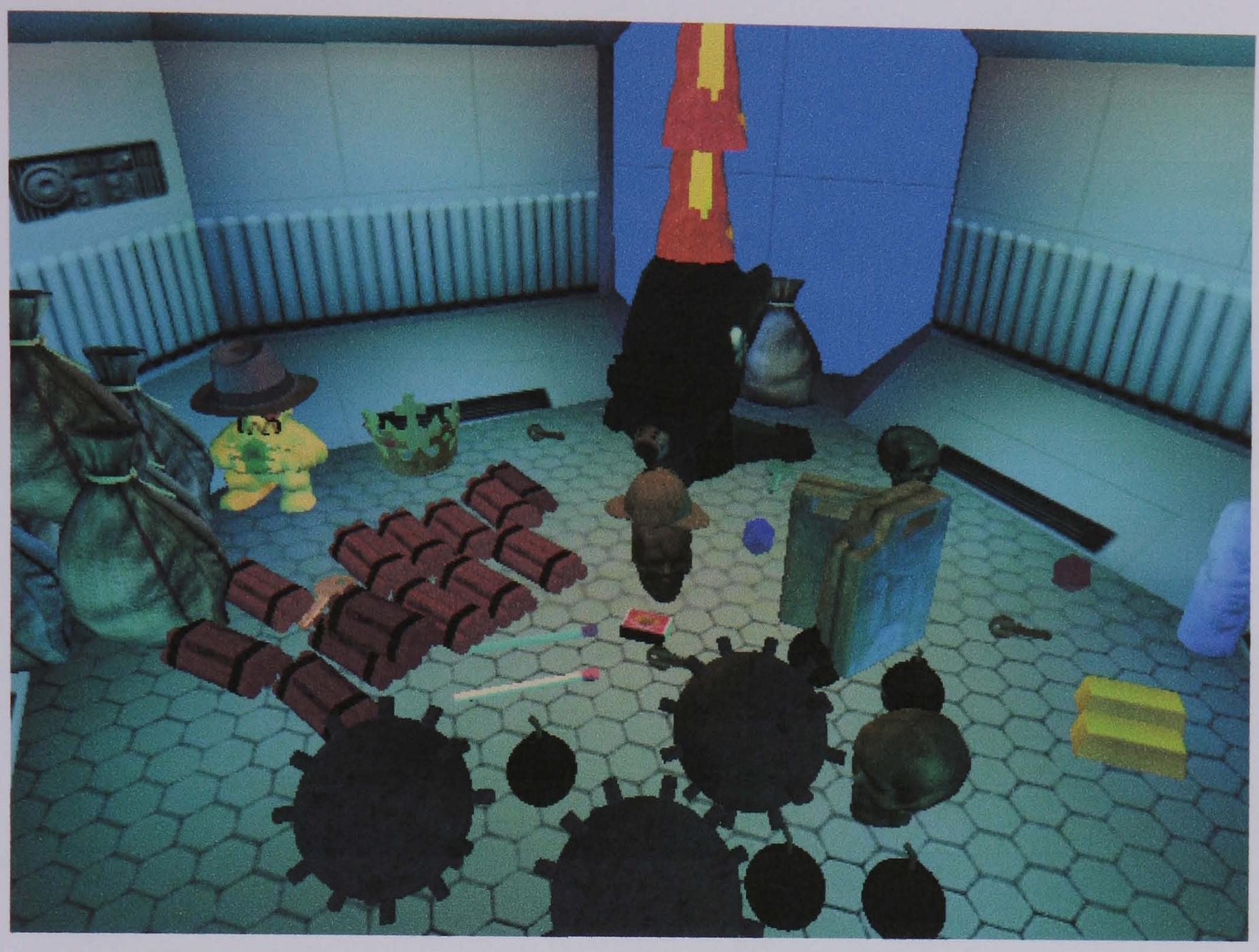


Figure 4.5: Room in Frank and John's game, session 9

By attaching sounds to a select number of items, Frank and John however map a way through the visual medley. In the scene shown above, the only item to make a sound when clicked is the key besides the robot – this also opens the safe which enables 'the doctor' to escape from the ship. The spectacle and humour of the visual design is thereby undercut by a highly restricted aural network which connects the various items to be interacted with in order to progress through the game. Here, therefore, it is the playing path which is created as an adversative extension; although no clear vectors are established at the level of the visual, these are realised aurally. Whereas Dave and Helen use sound as a satirical counterpoint to the visuals, Frank and John present a highly heterogeneous visual (and public) environment which can nevertheless be navigated in an ordered sequence by (other students) wearing headphones. The two games are motivated by the different positions these students took up in the classroom, in relation to other students and the teacher.

Motive in the English, Media and ICT classroom

The conjunction of signifier and signified in the classroom is motivated by students positioning themselves as subjects in a system of social relations which are conventionalised in such a site. A signifier of narrative in games made in the middle part of the course was a compositional arrangement characteristic of written narrative, a choice which I explain in terms of the norms established by the teacher and researchers as points of authority in this setting. These norms constituted the basis on which 'game' and 'narrative' could be recognised and produced as legitimate signs of conceptual understanding. The teacher and researchers developed a template for what could be considered 'game narrative' in order to be able to account for what students were doing in making texts with a new and highly unfamiliar semiotic resource, and identify indicators of competence with respect to the aims of the course. Thus 'narrative' was signified in relation to well-established and socially esteemed conventions in the written mode. The introduction of a material resource – headphones – altered the way in which narrative could be realised, by creating an additional semiotic space as an invisible extension of the screen. This equipment was used (or re-signified) by students to realise a convention of games. In this sense, students realise a meaning of games – their subversion of some social norms – with a material form primarily used to manage a classroom. The games made in class are thus not 'bad' games, in comparison say to commercial games and also in Gee's sense of 'not learning'. They are meaningful as games precisely with respect to the conventionalised social relations of the classroom. A game is thus not a set of formal attributes, therefore, but the social function which a sign performs in context.

Section 2: The games made in the after-school club in Cambridge

The after-school club started a few weeks after the English, Media and ICT course described in Section 1 had finished, and ran for six weeks, with two sessions lasting whole days and the remaining four taking place after school for an hour. I asked

twelve students to take part, from previous field work activities, primarily on the basis of their demonstrated enthusiasm for playing games. Two students came to all six sessions, the others came for four sessions on average, and five students came to the first session only. Students worked largely individually, and on the same game over the six weeks. In contrast to the class-based course, then, games were generally developed by one person, who worked continuously on one game over a length of time.

I led the club, with one of the school's English teachers sitting in and working with students individually. On the morning of the first session, I demonstrated the basics of the software for half an hour, showing how rules were written, how files could be imported, and introducing the range and classes of entities. Students then worked individually. I moved around the group, talking to students about their game and explaining how to achieve specific effects. From the start, I placed an emphasis on game play – students were asked to try each other's games regularly rather than only at the end of the course, and I described the purpose of the club in terms of producing a 'playable' game within six weeks. Participation in the club implicitly involved showing willingness to make a complete playable game.

In analysing the games made on the English, Media and ICT course, I identified a chronology which matched to the pedagogic strategies adopted on the course. This is not possible with the games made in the clubs, because different students came to different sessions. I will therefore focus on students' different strategies for signifying their text as a game. Analysis of the games made in the club indicates that in this site, students positioned themselves in relation to different points of authority for what counts as 'playable'.

In the club, the distinction between game play and game-making became blurred, with students playing and making games alongside each other. The effect was not simply that students played each other's games. Rather, game-makers also played their own games to an audience of others. In other words, games were organised to

signify their maker's playing experience. Conventions of design in commercial games are justified on the basis of the social separation of designer and player; games can be sold to players, because players are a different entity to makers. In the club, students transformed conventions of commercial games on the basis of the collapse of this distinction. In its place, another distinction became more relevant: the difference between types of players. Students differentiated themselves from others on the basis of how they played, rather than simply how they made, their game. One consequence of this was games which were difficult to play, precisely because they were created to be played by their maker, as a form of display, a spectacle for other students. Games were made difficult by transforming conventional signifier-signified relationships in commercial games.

Below I analyse two games which realise different strategies for signifying 'playable'. I have selected these games because they indicate contrasting approaches. They are not representative, in other words, of games made in the club, but rather of the process by which games instantiated social relations specific to this site of textual production. My interest is the formation of students' motives in this context, and how students' approaches to game-making positioned them differently.

The first game, by Simon, is organised on the basis of sequences which distinguish games from other genres. The game is divided into 'levels', with challenges arranged to indicate a progressive level of difficulty. It includes a training area in which various items and cause-effect relations are demonstrated. Value is placed on the structure of games as a distinct genre, and therefore, on game players as a distinct social category. These genre-specific sequences are signifiers of 'game'. However, Simon organises them in such a way as to frustrate their function in game play.

The second game, by Jak, consists of images and sounds sourced from web sites associated with games, but also other kinds of media products. It also includes a number of technical effects: logical rules which demonstrate certain combinations

and technical processes, and which place value on programming dexterity. Again, such logical rules are organised as a form of display rather than as the basis for play by others.

These two games are based on different conceptions of what makes a game playable. For Simon, it is genre conventions: conventionalised norms which establish the values and beliefs of a specific social constituency. For Jak, it is technical processes by which games are made: the writing of logical rules, the programming underpinning the game as textual entity, as well as images and sounds made by media companies. These two conceptions enact different subjectivities. In Simon's case, emphasis is placed on knowledge of norms, and on this basis, the transformation of such norms in the circumstances of the after-school club. In Jak's case, emphasis is placed instead on the incorporation of material produced by media companies and the re-enactment of specific technical production processes; in other words, it is not one's own embodied knowledge which makes a game playable, but knowledge held by others, and realised in specific kinds of technical (rather than primarily semiotic) processes. The games are thus difficult to play for different reasons: Simon's game is intended to display his expert playing skills, whereas Jak's game is designed to be accompanied by a commentary on how procedures have been carried out and where material has been sourced from. These two strategies for the production of subjectivity are based on different notions of authenticity, and of the way in which a game as sign is legitimised.

Simon's game: the design of genre sequences

Simon started his game by establishing conjunctions between aural and visual entities. In the first location to be arranged (Figure 4.6), arrows map a path around the room. Passing over the arrows causes the same sound to play. The robots and consoles are also associated with specific sounds, emitted when the respective entities are clicked. This establishes a classificatory process, with visual entities classified into aural categories.

Figure 4.6: First location in Simon's game, two hours into the first session of the after-school club, with arrows on the floor, robots at each door, and a console in the doorway at the far end

In the first location, sound restates visual repetition. In the next few locations, the same sound is associated with more than one visual entity. In the second location, a white robot moves forward and a sound is emitted simultaneously; shortly after, a black robot also moves forward and the same sound is simultaneously emitted. Also in the second location, a sound is emitted when a large entity is made to disappear, clearing the path forward. Shortly after, the same sound is emitted when a different large entity is made to disappear, also clearing the path forward. A safe, in the first location, and a set of drawers in a subsequent location both open with the same sound emitted simultaneously. Although Simon uses different styles of doors, they all open with the same sound being emitted. Through aural repetition, then, different visual entities are assigned the same possessive attribute, which classifies them

conceptually into the same functional category. The sound emitted when the two large visual entities are made to disappear is made into a sign which means 'obstacle removed', or 'path cleared'; the sound emitted when the two types of robots move forward is consequently made to mean 'attacking enemies'. The sound emitted when the safe and the drawers open becomes a sign of 'object that opens and resources to collect'. Through the creation of an aural matrix which classifies a variety of visual entities and processes, the meaning of new entities (such as for example the attacking black robot) is established by aural association with events earlier in the game.

The conjunctions are not equivalent to the game's logical rules. The logical rule which specifies the conditions under which a sound is emitted varies from case to case; in the second location, the sound which signifies 'obstacle removed' is emitted when a keypad is clicked, but in the subsequent location, it is when a sword is placed in a trigger zone. A distinction is thereby maintained between logical rules, by which the game has been built, and rules of play, which establish the game as a semiotic, textual entity, by assigning meaning to an event in relation to the game's objectives. In Jak's game, this distinction is collapsed, precisely because he signifies games as processes of programming. Simon places emphasis on the conditions under which players make sense of games as semiotic spaces, whereas Jak focuses on the technical conditions of their production.

The significance of entities and events is also indicated through the use of voice recording. Upon entry of the area shown in Figure 4.7, the following words are heard, recorded by Simon in his own voice: "to kill robots and remove obstacles in the Egyptian areas you need the sickle sword. use it to remove this blockade. the sword is hidden". The statement is structured to describe the sword in terms of its general properties, with a particular incidence of when these properties apply pointed out. It identifies the meaning of this incidence (removing a blockade, with the same sound emitted as referred to above, when a first 'blockade' is removed) as well as subsequent incidences of using the sword and the consequent effects. If the

sword is placed in the trigger zone located above the robots (who move forward emitting the same sound), these become invisible; this visual effect is consequently signified as 'killing' robots.

Figure 4.7: The 'Egyptian area' in Simon's game

The conjunctions of aural and visual signs, as well as the use of voice recording to issue instructions, occur only in the first few locations of the game. After this, there is a maze to be negotiated and entities to be collected. The game ends when three entities are placed in three specific spaces. None of the entities or the spaces have voice recordings or sounds associated with them.

This divides the game into two sections: one in which patterns are established between aural and visual entities to classify visual entities and events, and so specify their meaning; and in which explicit instructions are issued on how to use entities

generically, beyond the specific situation in which the instruction is issued. And another section in which there is no such similar initiation into the semiotics of the play space, no creation of patterns which establish associative links across space and thus suggest the meaning of entities or events.

This distinction is familiar from commercial computer games, in which players are sometimes introduced to the meaning and usage of entities in a 'training level'. A training level often consists of explicit instructions, which tell the player how to perform actions and use items which she will encounter in the game. It appears at the start of games, before the player engages with the game's first level or main storyline. The provenance of the aural patterning and recorded instructions can therefore be identified in terms of this convention; the first few locations of Simon's game are signified as a training level. This frames the rest of the game as the game's first level, or the main part of the game.

However, the conjunctions established in the training level are not then repeated in the second half of the game – for example, there is only one obstacle in the Egyptian area which the sword can clear, despite the use of the plural in the recorded instructions described above. The training level is thus not matched to subsequent challenges. Its function, it seems, is not to initiate the player into rules which apply across the whole game, but instead to signify the process whereby a player learns to play a game. The training level in this respect is not a signifier of the rules of play – as in commercial games – but of what constitutes computer games as a distinct genre. The function of the training level is thus the opposite of its conventionalised function; it makes the second half of the game difficult, precisely because the expectations created in the first half are not fulfilled[8].

The motive underpinning this textual arrangement can be understood in terms of Simon's efforts to identify himself as a highly competent player. In discussions I had

---

[8] This is not to argue that training levels in commercial games always succeed in initiating players into the rules of play.

with him during the club, he stated that was inspired by *Silent Hill*, a game which is often taken as an indicator of complex puzzle solving in gaming magazines and online fan literature. When other members of the club played Simon's game and gave feedback which indicated that the game was too difficult to play, Simon responded by arguing that the other students were clearly inexperienced, in other words, incapable of solving the puzzles he had devised, and also overcome in games like *Silent Hill*. This suggests that Simon was not primarily concerned with making a game which others could play, and which is matched to their level of experience in some way, but to emphasise his own playing ability, within a social group assembled precisely on the basis of game playing experience.

Another set of conjunctions is created in the game by associating specific weapons with specific enemies. The first weapon encountered in the game is a knife, which disables white robots in the sci-fi area. The second is a sword, which 'removes blockades' and 'kills' black robots in the Egyptian area; by their colour, angular shape and skull-and-crossbones decoration, black robots look somewhat fiercer than the white robots:

Figure 4.8: the rounded, human-shaped, smiley-faced white robots and the angular, machine-like, skull-and-crossbones marked, black robots

The third weapon is a mine, which is used to blow up a reinforced door towards the end of the game.

The weapons are sequenced across the space of the game according to their fire power, or potential to inflict damage, as indicated by the size, menace, and solidity of the entities they 'kill' or 'destroy'. Such a sequence is a convention in commercial games, which signifies a progressively increasing level of challenge[9]. Its function is to sustain the development of player skills, by introducing challenges in some order of difficulty. The sequence also establishes a rhythm in the pace of play, setting a tempo and raising the stakes as ever more ferocious enemies challenge the player. In Simon's game, the sequence sets a rhythm which maps to the spatial beginning, middle and end of the game, with the last weapon/enemy conjunction made just before the collection of the final entity necessary to end the game.

However, the logical rules which enable the white robots to be 'killed' and the reinforced door to be 'blown up' are identical: the appropriate weapon (knife or mine) is placed in a trigger zone. This means that the required player skills are also identical – there is no additional difficulty in overcoming the obstacle.

When Simon demonstrated his game in the final session of the after-school club, he emphasised that the section involving the reinforced door was 'really cool', and paused to ensure everyone in the group was watching. He then demonstrated 'blowing up' the door by placing the mine in front of it. It did not seem to be clear to the group in what sense this section was meant to be more cool – at least there was little reaction despite the build-up of expectations. It was not clear to myself at the time, or to the students, why the event was special. Subsequent analysis of the game however indicates that the mine is the pinnacle of weapon power. In commercial games, big weapons signify big challenges. The mine here is not a signifier of difficulty level, but of the realisation of a sequence, characteristic of games as a genre. The mine stands out from other entities precisely on the basis of the sequence of weapons and its position in this. These conventional sequences in commercial games are motivated by the nature of the relationship between designers and players,

---

[9] Commercial games often include a range of weapons, from crowbars to missile launchers, to indicate the level of skill required to overcome challenges. Players usually start the game with weapons which inflict relatively little damage compared to those encountered later in the game

with designers teaching players how to play. In Simon's game, they are motivated by the desire to signify expert knowledge of games, and to demarcate a point of authority and social category – expert gamers – with which a social affiliation can be established. Again, this social category is significant in terms of the principle of selection for the club.

The principle according to which Simon's game is designed can be understood in relation to the available social, material resources in the after-school club. The club consisted of students who had identified themselves as enthusiastic game players in class. In positioning himself as an expert game player, Simon makes a claim to authority within a social group brought together on the basis of their knowledge of game play. He legitimises his game in relation to conventions upheld by the game industry. Unlike in the media studies course, the point of authority is outside the club itself, and is thus instantiated in students' knowledge of it rather than directly. In the after-school club, students' strategies are based on claims to knowledge developed by others. Simon however claims such knowledge as *also* his own, on the basis of his playing competence.

Jak's game: the production of authenticity

Whereas Simon paid attention to the design of genre-specific sequences, Jak composed his game spatially primarily to make room for singular but spectacular effects, including the incorporation of iconic images and display of specialist technical processes. These are not apparently ordered; Jak changed the game's starting position from week to week, depending on which location he was working in.

Jak's approach to the design of his game seems to have been a consequence in part of an encounter he had in the first session of the club, with an artist who had worked on the development of the game-authoring software. Once Jak ascertained that this artist had worked on 'real' computer games, including ones he had played, he spent

much of the session probing him about the possibilities and restrictions of the software, by asking questions about how to achieve certain effects, such as including cut-scenes[10], mimicking the effect of 'killing' or visually representing explosions. Consequently, he learned how to combine rules so that one effect could be achieved from two causes (the effect being: if X *and* Y, then Z), a technical procedure which at this stage I was not aware was possible.

This technical effect, achieved by combining two logical rules, was used to make a door open. The rule can be expressed as: *if* the die *and* the stick of dynamite enter the trigger zone, *then* the door opens.

Jak did not include any indication in the game (in other words, at the textual, semiotic level) that the die, the dynamite and one particular door were linked logically – it was only in the last session that he included clues about this, at my 'suggestion'. In writing the two rules, however, Jak was not apparently seeking to generate more complex game play, but precisely to display specialist knowledge, gained as a consequence of a discussion with a professional game designer. The rule functions as a signifier of Jak's association with that designer. This represents, I think, a claim to authenticity, which made my emphasis on game play inauthentic, or a more marginal consideration. It was only after my repeated 'suggestions' that Jak amended his game to establish semiotic links between the various entities (he inserted a written message which stated that the die and the dynamite opened the door). I made this request on the basis that people who played his game in the club (including myself) made little progress because it was not possible to establish how the door could be opened. However, the failure to establish associations, at the textual level, between the entities involved in the two-part logical structure was not an oversight or a failure to understand feedback from other players. It was necessary

---

[10] "A cut-scene is a sequence in a video game over which the player has no control, often breaking up the gameplay and used to advance the plot, present character development, and provide background information, atmosphere, dialogue and clues" – Wikipedia. It was not technologically possible to insert cut-scenes at this stage in the development of the game-authoring software

for other students and myself to remain puzzled by the rules of play precisely so that Jak could explain how the associations operated at the logical level.

This is corroborated by principles of design prior to the last session. In one location, clicking on a console caused the image below to appear.

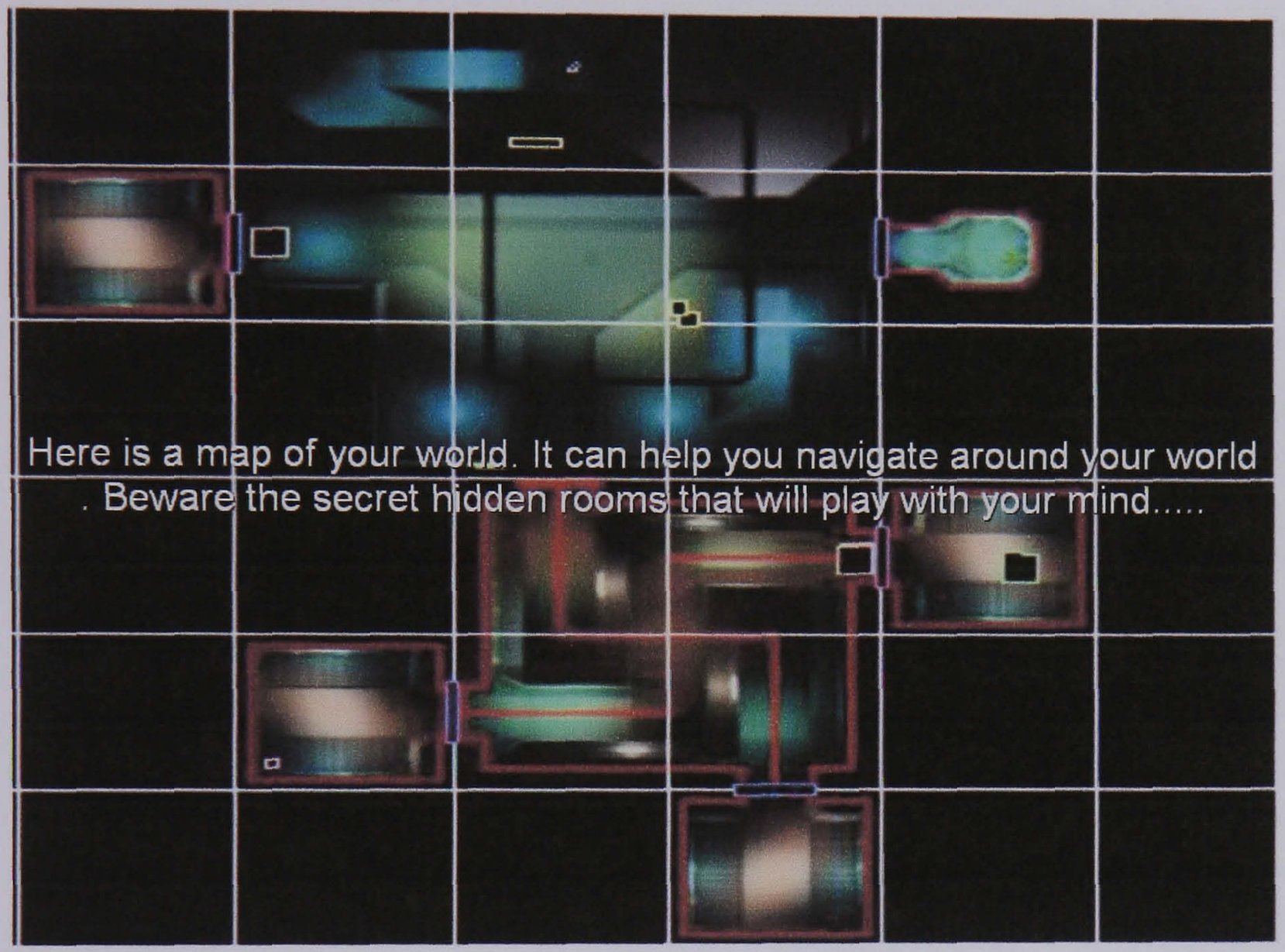


Figure 4.9: The map in Jak's game

The image is a top-down view of Jak's game, which he incorporated within the game itself by using the 'print screen' function and *Photoshop*[11]. These kinds of maps – of buildings, or facilities – are common in computer games in which the player has to choose a route or find particular locations. The inclusion of the map, however, is not justified primarily in terms of aiding navigation; the image does not indicate the player's location, for example, at the point at which the map becomes available. In addition, and as the overlaying writing suggests, it is not reliable as a route-finding aid. This is because Jak subsequently added additional locations to his game.

---

[11] This is software designed to support the manipulation of digital images. It is marketed primarily as an industry standard, although is also starting to be used in schools

The map achieves an effect which had not previously been considered in the group: the incorporation of images from within the game itself. Again, I was not aware this was technically possible. The map functions as a signifier of a particular technical procedure, not taught to the other students: the conversion of an image from one format into another, and subsequent importation into the game. The production of this signifier can perhaps be understood in terms of Jak displaying specialist knowledge of technical processes. The map is retained even when it ceases to represent the space of the game accurately because its function is to point to a technical procedure.

Most of Jak's time was dedicated to finding images and sounds on the internet, on game or other popular media sites. He inserted these in the penultimate session, re-organising the space of his game once again. The starting point was placed in front of two consoles. Clicking on each brings up two different images with overlaid writing:

Figure 4.10: Two images from Jak's game introduced in the penultimate session of the after-school club

The writing indicates that the images are possible avatars[12]. Providing a choice of avatars is a convention of games with an emphasis on role play. However, the choice in this case is not significant to game play, since the player character is not visually represented during play, and different rule sets cannot be attached to different avatars. The two images do not therefore enable the realization of a choice of avatar. They seem justified, rather, in order to establish an association between Jak's game and commercial computer games. During the club sessions, he pointed out that the avatars are 'real' computer game characters.

In the final session, I asked Jak to provide an ending for his game. This was also to make the game playable, by establishing an end-point. Subsequently, he inserted the following image:

---

[12] An avatar is the player's character within a game

Figure 4.11: The image that appears at the end of Jak's game[13]

The image is iconic of one of the *Star Trek*[14] films. As it appears, the sound of an explosion is emitted, also sourced from the internet (it is noteworthy that although many games in the club included signifiers of 'explosion' and 'explosion sound', Jak was the only student to search and source sound files from the internet. Other games incorporated somewhat less dramatic 'bang'-type sounds generic to the software). When Jak demonstrated his game in the final session of the after-school club, students asked whether the player character had been successful in the mission or not, to which Jak replied positively. When asked what happened if the player was unsuccessful, Jak replied that the same image and explosion sound appeared anyway.

---

[13] Jak's game crashed in the last session and the last few hours of work were lost. I rely here on video footage of the club. I found the original images in Figures 4.10 and 4.11 on the internet by searching by their file names

[14] A science-fiction franchise which is the basis of numerous TV series and films

It seems plausible to interpret the images in Figures 4.10 and 4.11 also as signifiers of authenticity. Their insertion is a 'suturing' move. I borrow this term from Whiteman (2007), who uses it to describe a strategic action which draws together an ideal text and fans' own texts. The action authenticates the fan's text, and legitimizes its author as the target audience. This approach to textual production is characteristic of fandom (Hills 2002). Specifically in games, however, it is also a necessary aspect of production (Bogost 2006). Many games copy coding from other games to reduce development time; this is referred to as using the same game engine. The incorporation of images and sounds can thus also be understood as the demonstration of a particular kind of technical procedure: the evaluation of the capabilities of a game engine. The images thus function as signifiers of authenticity at two levels: in terms of their provenance, and in terms of the procedure by which they appear in Jak's game. Jak in effect examines how far the coding can be manipulated and re-combined with other codes. It is often with respect to such criteria that game engines are judged in specialist gaming publications.

Whereas Simon's game signifies his own knowledge of games, Jak's game emphasises the value of processes carried out by others. He positions himself as a fan rather than a legitimate producer of games. This is not to deny that he does not also make claims to knowledge, but here it is knowledge of processes carried out primarily by other people (programmers, developers and so on). He does not set out to make a game which is like other games semiotically and textually, but rather, to display actual sequences and technical processes from those other games. I have noted the significance of Jak's encounter with the 'real' computer game artist at the start of the club, who taught him new kinds of logical structures. This knowledge seems to have been more highly valued that that of the teachers' (including myself), who emphasised the importance of semiotic (rather than technical) conventions to sustain game play. Jak and Simon thus affiliate themselves with different points of authority, the former with an industry member, the latter with expert game players (as well as the teachers in this instance). These are the respective audiences which the two students seem to address (although not exclusively). These alternative

strategies emerged in reaction to each other, rather than independently. They represent competing claims for what can be counted as 'playable'.

It is significant therefore that in showing their game to the rest of the group in the final session of the club, there was much laughing and joking at Jak's expense, precisely by asking for explanations about the choice of entities and the order of events. When he explained that, in one location, the player has to place a bottle of beer in front of a door in order to open it, Simon interjected: "if the crew are that stupid as to make a key which resembles a bottle of beer they deserve to die". Simon's comment makes fun of Jak by taking the setting and sketchy narrative justification literally, thereby suggesting that there should be a clear link between the choice of entity and the consequence it leads to. Jak's choice of a bottle of beer however seems motivated precisely by a desire to obscure semiotic associations at the textual level. The bottle of beer is selected, it seems, because it has no obvious association with a door or a key. In the club, this principle of selection made Jak's game into a joke and Simon's game into a display of player expertise.

Motive in the after-school club

In asking students to play each other's games and emphasising the importance of making playable games, my intention in the club was to overcome some of the perceived limitations of the field work in the English, Media and ICT course, in which students had had little time to play each other's games, with consequent effect, I believed, for how they made games. I thought that if students played each other's games, they would gain understanding of how others interpreted their game, which would enable them to adjust their principles of design iteratively, in response to feedback. 'Better', more playable, more semiotically conventional games would be produced as a result. The emphasis on playability was thus a pedagogic strategy.

However, the games produced in the club seem to function as competing claims for what is playable, or more precisely, the basis on which games are playable, be it

semiotic design conventions or complex technical procedures. Such claims produce different subjectivities, as they are realised on the basis of different strategies of legitimation with respect to points of authority. The transformation of conventional signifier-signified conjunctions also raises the question: playable by whom? The games are designed as forms of display – displaying different things, but playable primarily by their makers. This can be plausibly explained in terms of the collective setting of the after-school club, assembled on the basis of students' game play experience. Students identified themselves as particular kinds of players. Students played each other's games, but the game's maker usually participated in this. Game play was enacted not only in the screen, but around it, in the exchanges between player and maker. Simon's puzzles can thus be seen as problems intended precisely *not* to be solved, but discussed with him. Similarly, Jak's game seems to work as a tour of iconic signifiers organised to be accompanied by a running commentary. Their approaches are however not treated equally in the club, because of my emphasis on games as texts rather than technical processes.

The games are designed to realise meanings in a specific context. Both games analysed in this section re-make generic conventions of games, including a training level and the setting of choices of avatars. I have commented on the situated meaning of such signs. The meaning which games have for students is similarly situated, and can be understood in relation to the conditions under which subject positions were instantiated in the club.

Section 3: The games made in the home

In the third year of the Making Games project, students from the after-school clubs in London and Cambridge were given the software to take home, and asked to return games to me after two months. Such games would then be submitted to a competition and prizes given out. Only three students (out of 14) produced games, although a few more edited material they had produced earlier. This was largely because they did not have sufficiently powerful machines at home to run the

software. However, students who did have the required hardware also did not produce games.

I have not included edited games here as they consist mainly of minor amendments to games made in the after-school club, which makes it difficult to use them as the basis for comparison across sites of research. In comparing the conditions of possibility for making games, then, one issue in examining the home context is why so few students made games. In interviews, students stated that they had not had the time, which is not very illuminating, although it does suggest that making games was a low priority with respect to other activities.

Analysis of games which *were* made, as well as interviews with their authors, indicates that students at home made games for a restricted audience; normally, their immediate family, which consisted of two or three people. This suggests that making games was potentially of relatively limited social purpose, and consequently limited meaning as an activity. There was no audience to play the game or make judgements about it. Game-making was not part of a social practice, as it had been in the club and in class. This corroborates Buckingham and Sefton-Green's (1994) argument that the use which young people are assumed to make of digital production technologies at home is often over-estimated, at least with respect to certain kinds of textual production (for example video-making). This is primarily because such use fulfils little social function. Amateur game-making is not an established social category, unlike for example amateur photography, which some people engage in often with a restricted audience. Making games at home thus does not easily sustain ways of being a subject in social practices.

The three games which were made are organized to sustain practices that do exist in students' homes. The first of these is game play. The games made at home all have emergent structures. I draw here on Juul's (2002) terminology, who distinguishes between two basic structures for games: "that of *emergence* (a number of simple rules combining to form interesting variation) and that of *progression* (separate

challenges presented serially)." The games made in school and in the after-school club have structures based on a progression model, because they demonstrate a concept of (linear) narrative or because they are intended as a form of display. The games made at home have emergent structures, so that they can be played by their own makers. Emergent structures mean that the logical rules create a space of possibility for action, rather than prescribe singular and sequential actions. In other words, they enable the player to play according to different strategies[15].

The development of emergent structures can in part be explained by the introduction of characters and a dialogue-writing facility in the software. Speaking characters meant it became possible to have branching dialogue trees, a convention of computer games, particularly in role-playing games. However, as I will discuss with respect to Ouais' game, space was also organised to facilitate different routes through it. In class and the after-school club, space was often organised to produce a maze; games had multiple rooms and corridors, but there was usually only one way through it. The games made at home have no single end-point, and are organised on the model of a network rather than a maze.

A second kind of social practice which can be identified on the basis of analysis of the games and interview data is the reporting of school-based knowledge to parents. Ouais' and Zawadi's games were used to introduce family members with little knowledge or experience of games to the genre. Although the home setting was justified in the Making Games research design as a point of contrast with the school, it would seem that game-making at home became an occasion to legitimise an activity (game play) by showing its relevance to work done in school. Games made in the home are designed to initiate non-players to design conventions, to illustrate how games work as texts.

---

[15] The difference between progression and emergent structures can be illustrated by comparing Chess and Snakes & Ladders. Both games have rules. In Chess, the player has choices over how to play by them. In Snakes & Ladders, the player moves the counter along a numbered set of squares

There is relatively limited data on the game-making process at home. I did not visit students, and interviewed them only once they had returned their games to me. At the game competition, students gave 5-minute presentations about their games, and I have video footage of these. However, I have only final versions of games, as opposed to multiple versions which bear witness to how the game developed over time. The lack of a historical perspective means that it is not possible to analyse how principles of design and strategies of subject formation evolved, and the way in which they are correlated to other historical events. Arguments about why games are organised in a particular way are, as a consequence, more general and feel somewhat less grounded. However, although perhaps less can be said about them with confidence, there are some principles which can be drawn out and which relate to the social and material configuration of the context.

Below, I discuss three games, one of which is by Simon, whose work in the after-school club I discussed in Section 2.

Simon's game: designing conditions for role-play

Simon's game in the after-school club was structured on the basis of generic sequences. One of these related to the conjunction of weapons and enemies, with weapons of increasing fire-power aligned with enemies of increasing menace. The same sequence also exists in the game he made at home. However, there, the way in which such a sequence is realised in play is in part a function of the player's strategy. Rather than having just one weapon for each type of enemy, different weapons, with different capacities, are offered to the player, so that combat is a matter of judgement rather than correct application of the rules of play.

The different weapons are made on the basis of the same visual entity, by changing that entity's properties and description:

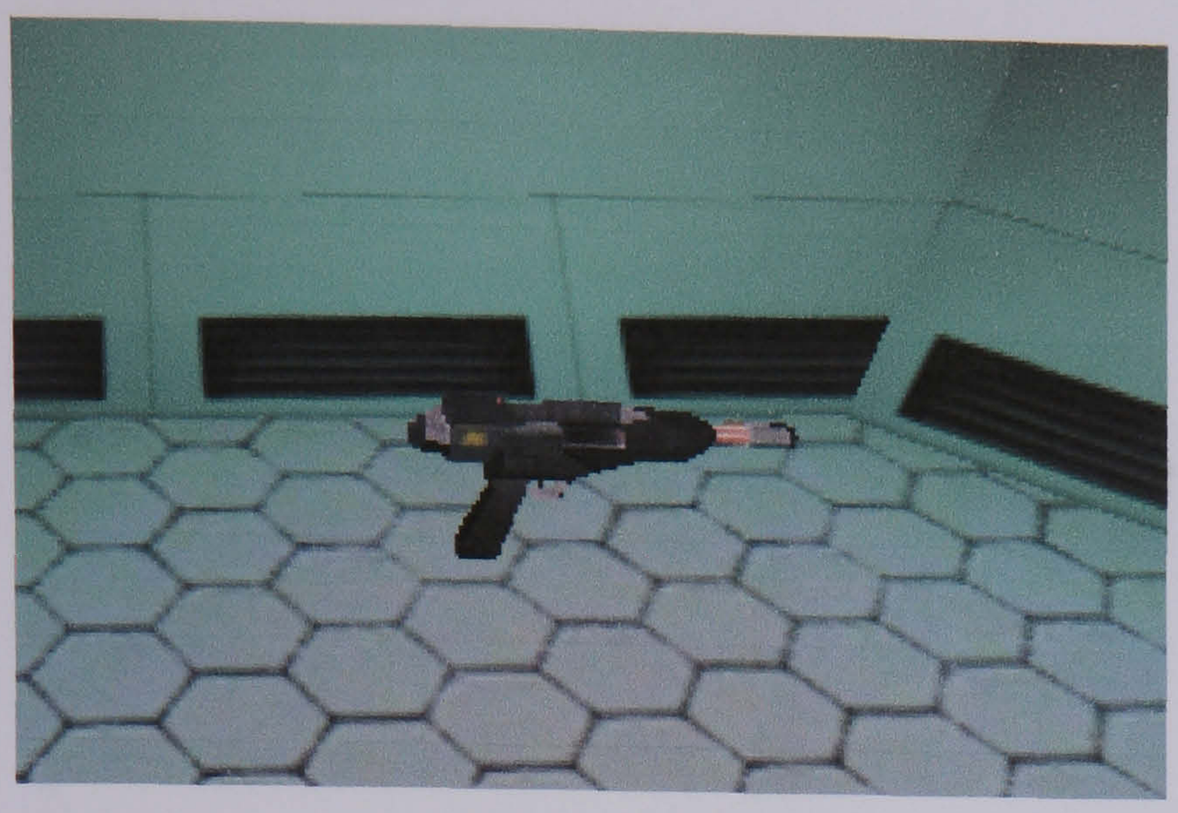


Figure 4.12: The 'RayGun' as visual entity. This entity is the only one in the software which fires ammunition and looks like a gun.

pickup

RayGun

PROPERTIES	ACTIONS	ASS
Active	True	
Description	Ray Gun	
Size	0.35	
State	In World	
Weight	10	
Vulnerability	10	
Value	10	
Health Value	0	
Nutritional Value	0	
Uses	1	
Time Bonus	0	
Points	0	

Figure 4.13: the first weapon in the game, located next to the starting position. Scrolling down the table of properties reveals that the weapon power is set at 10, weapon range at 1000, and weapon rate at 20. Weapon rate refers to the speed with which ammunition is fired.

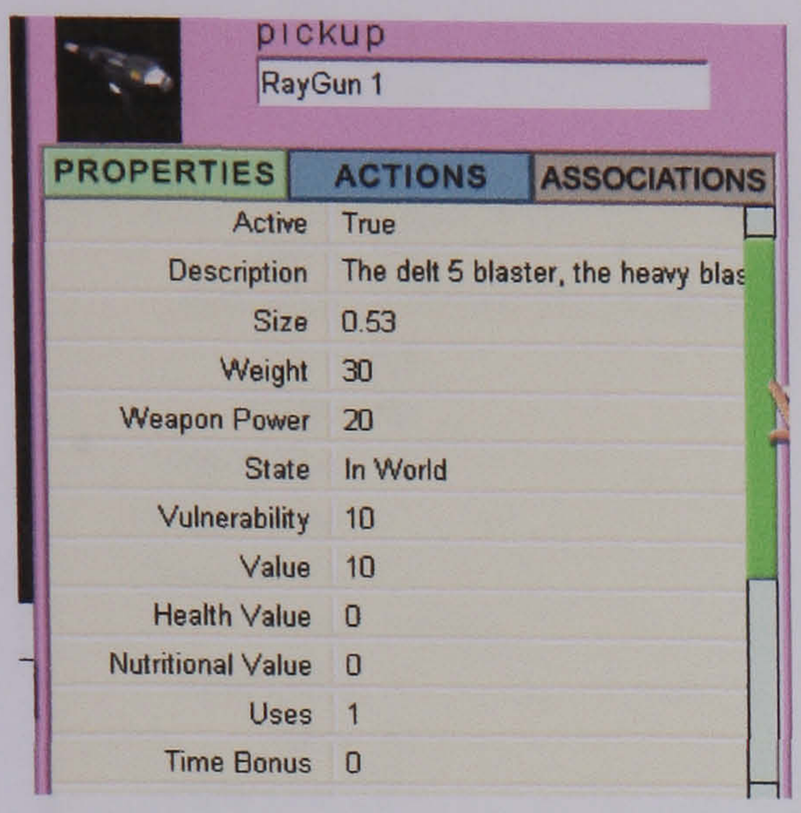


Figure 4.14: the second weapon encountered in the game, located in a subsequent location to that in Figure 4.12. The weapon's size is increased, and its power doubled to 20. Weapon rate remains at 100, and range at 1000. Its weight is three times as high as the weapon in Figure 4.12; 30 as opposed to 10. The maximum weight which the player can carry is set at 100. This means that the second weapon is more powerful than the first but also weighs more. The significance of this relates to any other entities which the player may be carrying in its inventory; if the total weight exceeds 100, entities in the inventory have to be removed and discarded. The description of this second weapon reads as follows: "The delt 5 blaster, the heavy blaster, heavy weight but heavy damage also". This description can be read by the player in 'play' mode upon pressing the 'examine' button (see chapter 3, section 2).

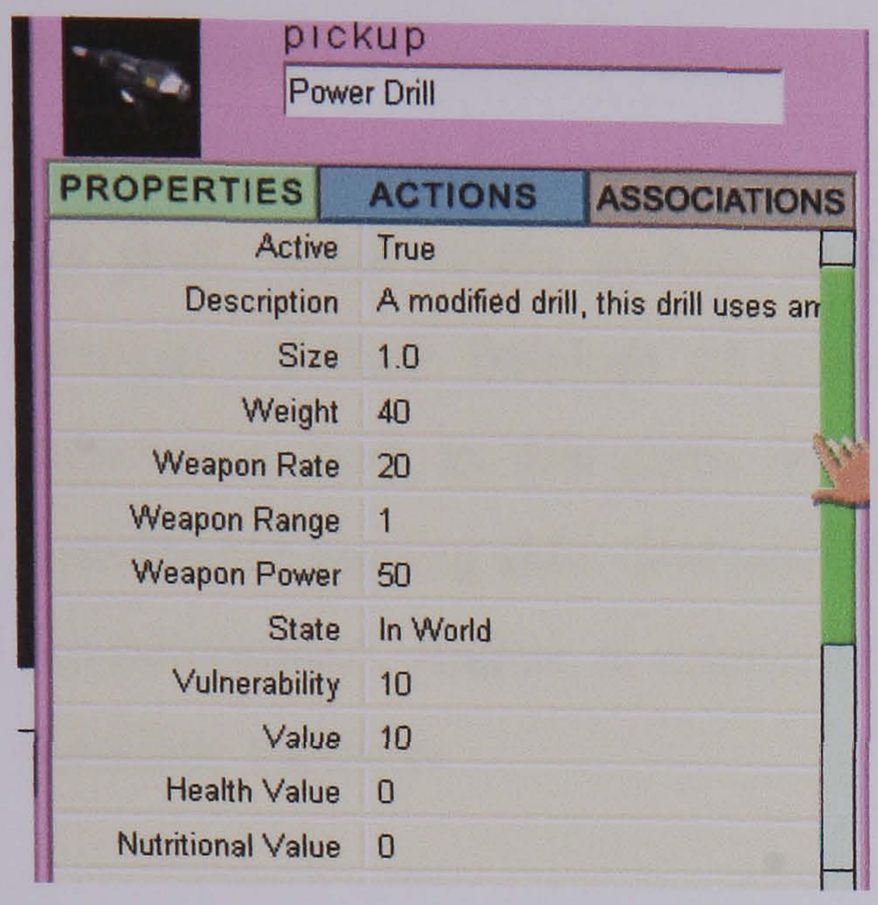


Figure 4.15: the third weapon encountered in the game, located near a particularly challenging enemy. Although it is the same visual entity, note the name change; the default name in the software is 'RayGun' but here, this has been changed to 'Power Drill'. Its weight is set at 40, its size is nearly double that of the second weapon, power has increased to 50, and weapon rate is reduced to 20. The range is reduced significantly, down to 1. This means that it is a heavy, powerful weapon, which, however, takes much longer to fire the same amount of ammunition. In order words, the 're-loading' time after each shot is five times as long as for weapons 1 and 2. The description of the third weapon reads as follows: "A modified drill, this drill uses ammo to rip the target to shreds. Heavy, slow and with no attack range but can kill a normal trooper on contact".

Each gun is distinguishable in five respects: size, weight, power, range and re-loading time. This creates numerous variables. The player can shoot with a small, long-range but less powerful weapon with a fast re-loading time, or a larger, more powerful, shorter-range weapon which takes longer to re-load. The arrangement of the possible variables means that each weapon has certain advantages (e.g. long-range) and disadvantages (e.g. reduced power); no single weapon combines all the benefits. The weapons are spatially distributed across the game and broadly matched to level of challenge, as created by the properties of enemies (who also consist of identical visual entities but who gradually decrease in their vulnerability to being

shot). Choice of weapon relates to the player's location in space, but also to her tactics. These will depend on her evaluation of the best course of action to achieve her goal, which might include such considerations as judgment of the enemies' strength, of their freedom of movement, and of the player's previous playing experience, both in this game but also in other games; shooting is a commonly transferable gaming skill. The best tactic is not written into the game's rules; it is not pre-determined. Rather, it relates to the player's experience and judgment, and is therefore variable.

Juul (2002) indicates that an advantage of emergent structures, compared to progression structures, is that they allow many variations on the basis of a (relatively) small number of rules. Simon's game can be re-played, with different variations. In interview, Simon indicated that no one else had played his game. The game would therefore appear to be structured in part for his own benefit. It seems reasonable to argue that the game is designed to create a space of possible action through the manipulation of variables, so that it can then be played with unpredictable outcomes by Simon himself. He draws on conventions of role-playing games, a genre he also indicated a liking for. As in the after-school club, Simon's game positions him as a legitimate game-maker, whose design is justified with respect to his own knowledge of role-playing games, the conventions of which are adapted to the conditions of the site of production.

The structures of emergence in his game indicate a view of role play as the development of strategy, with respect to player experience and the evaluation of information in the game. It is not primarily a matter so much of the avatar's visual appearance or association with a cross-platform storyline, since neither of these aspects are alluded to, but rather the weighing up of probabilities and development of the avatar's identity through choice of action. As in the after-school club, Simon focuses on those aspects which are often taken to distinguish games from other genres. In doing so, he positions himself as an expert role-playing gamer. However, in this site, the meaning of visual entities is a function of their logical properties. In

the after-school club, such properties were rarely amended from their default settings. In the home, this is where Simon seems to have focused much of his attention. This suggests that in the home, attention shifts away from the visual as a site of public display, to the functional – to how entities can be used to achieve different objectives with respect to player strategy. Such a shift is indicative of very different social purposes for making a game.

Zawadi's and Ouais' games: designing choices for display

Whereas Simon's game assumes a common intersubjectivity with the player, Ouais and Zawadi address an audience who are unfamiliar with game conventions, and with the process of exercising meaningful choices within them. Simon's game assumes that the player can transfer (shooting) skills from previous gaming experiences, is willing to engage in role-play, and competent to interpret the conventionalised signs created to inform judgement and action. Ouais' and Zawadi's games in contrast make the matter of exercising choice the very subject of their game. They illustrate how games demand choices from the player by giving a range of examples.

Ouais' game is organised according to a principle of re-statement. Clicking on a phone causes it to ring, clicking on a character in a location labelled 'hotel' causes the character to ask whether the player would like to book a room. Inside the building identified as the bank (figure 4.16), most of the items re-state the identity of the location (figure 4.17): there are several security cameras, safes piled on top of each other, a character who when clicked says that the area is only open to bank staff, a cup which is identified as an award won by the bank, a computer screen with the words 'bank' written on it, and map which when clicked causes a sign to pop up: "you are currently in the bank". The high number of items in Ouais' game creates choices about which to click on and in which order. However, the function of such choice is to re-state information in multiple ways.

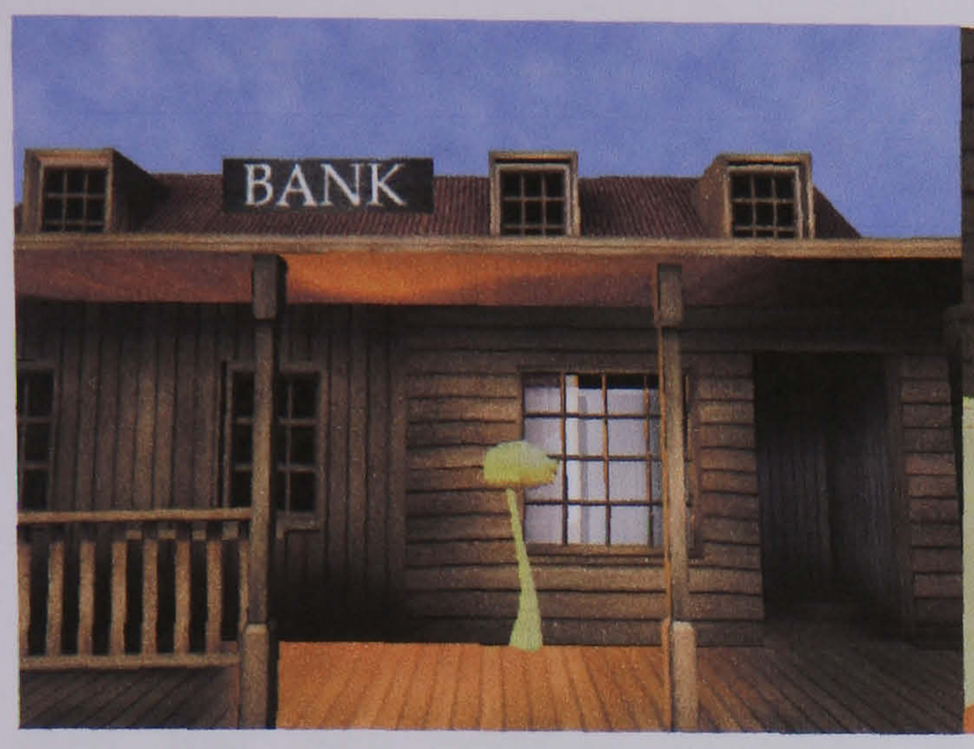


Figure 4.16: A 'Bank' sign placed on top of a building in Ouais's game

Figure 4.17: Inside the bank

Ouais' game consists of only two locations (by which I mean tiles), but the tiles are larger than most other possible tiles and feature a number of buildings, in 'Western' style. The buildings are identified according to similar principles as the bank:

Figure 4.18: the first location in Ouais' game.

The buildings are arranged to establish different sites of interaction, including a balloon shop, a hair salon (in the building with a 'saloon' sign fixed to it), and a hotel. The starting position is located to one side of the first location, and there are no vectors to order exploration of the space in any particular sequence. This suggests an equivalence between the different buildings. There is no overarching story and little reiteration of either visual entities or sounds across the different buildings. Each building is instead composed of entities which re-states its identity. It seems, then, that each building functions as an exemplar. The overt, reiterative re-statements which organise each building internally suggest that they are intended for an audience for whom such semiotic configurations are improbable or cannot be easily interpreted (Chatman 1978). That is, the game is designed for an audience perceived to be unable to make sense of the meaning of the space of the game or the function of the entities within it. The re-statements achieved often by clicking on entities serve to clarify how processes of interaction occur in the authoring software, and more generally I would say, in interactive environments such as games.

In interview, Ouais indicated that he had shown his game primarily to members of his family, but had not allowed them use the software themselves or alone; he considered they would not be able to use it properly since they did not play games. His game demonstrates expertise in a medium unfamiliar to its audience. This raises a question about why Ouais uses the game-authoring software to 'teach' his parents how interactive visual environments function. One possible explanation is that the software was given to him at school, with permission from his teachers. It became as a consequence a resource with which to signify games as educational objects. The game is a pedagogic intervention to demonstrate how learning occurs in such environments; the re-statements function in this sense rather like annotations on scientific diagrams, explaining what the viewer is seeing. This can be understood as a strategy for legitimising the seen object as worthy of study, and legitimizing its study as an educational process. Ouais establishes games as an educational domain, using the school as a point of authority, and then initiates novices into its semiotics, positioning himself thereby as an expert, with respect to other family members, in a

legitimate domain. The emergent structure of his game thus has a different function to those in Simon's.

Zawadi's game is designed according to similar principles as Ouais's, but instead of organizing emergent structures by location, she creates a number of quests for the player to complete – such as finding an item, selecting from a number of items, and choosing whether to follow a character or not. It should be noted that the game is not complete, as Zawadi planned it, and is, according to the presentation she made at the games competition, barely started. This makes analysis of the game as text somewhat problematic. However, in the game as it stood at the competition, the quests are not related either by plot, visual design or type of action. Again, they seem to be organized in order to serve as exemplars of possible events in a game, to be played in Zawadi's presence. As with Ouais, Zawadi played her game with her close family members only. Ouais focuses on the process of information gathering in games, Zawadi demonstrates the process of solving riddles and going on quests. Each draws attention to those features of games which they consider to be criterial, for an audience unfamiliar with the genre and its conventions.

Motive in the home

In trying to examine the conditions of possibility for making games in the home, it is to be noted that most students did not make games, either because they did not have suitable material resources (computers under three years old) or social resources - game-making did not sustain sufficiently meaningful practices. Interpretation is also limited by the lack of other data apart from the finished games, highlighting the value of evidence tracing the process of production in situ.

It is however possible to hypothesise about principles of design in the light of certain social practices in students' homes. Simon's game seems to function as an extension of his engagement with role-playing games: he selects the variables by which the game can be played, in order to sustain his own game play. In Ouais' and Zawadi's

cases, the principle of design seems to be more closely related to the practice of demonstrating the value of an activity in the home by reconfiguring it as an educational process, legitimated by the school. This practice is evident in the concept of 'informal learning', which is often associated with home-based technology (Buckingham in press; Sefton-Green 2004). The conjunction of signifier and signified is motivated by a pedagogical social relation, in which experts tell novices how something works. The game-authoring software was used to introduce family members to games, enabling students to position themselves as experts in a worthy domain of activity.

Conclusion

In this chapter, I have examined principles of design across three sites of research and examined how semiotic configurations are signified as games. My argument has been that what counts as a game is a function of relations between participants. Games are not recognised on the basis of formal attributes but as a consequence of the meaning which signifiers have in context. Meaning is made by re-shaping conventions. Such conventions have been conceptualised as the combination of discursive regularities, material entities and institutionally-located values. They are transformed strategically, to enact a subject position. Subject relations emerged in relation to each other and to competing points of authority. Contexts are differentiated from each other by the strategies which demarcate them. This means that contexts are conventionalised social practices but which evolve over time. A context, such as a classroom, is not a set of stable features which can be identified in relation to the entities within it, but rather a set of activities and relations – in other words, practices – which are constituted by materialised, social norms.

The analysis has shown that the meanings which young people make in designing games is a function of social and material resources. Such meaning is motivated, by students producing themselves as subjects. This means that learning can also be understood to be motivated. The implications for conceptualising the relationship

between games and learning are that games should not be defined as a set of forms, or as a set of meanings, but as entities whose form and meaning is situated and strategic. The focus cannot therefore be on games *per se*. Arguments about games and learning which do emphasise the attributes of games as objects tend to reduce learning to a particular kind of delivery process. This distinguishes meaning-making from experience. The students' games indicate that what people think about games, how they make sense of them, is related to the activities and social relations in which they are involved at the time, and the strategy pursued in becoming a subject in such a context.

CHAPTER 5

THE PRODUCTION OF GENDER IN THREE GENRES OF INTERACTION: A FOCUS GROUP INTERVIEW ABOUT GAMES; DRAWN SCREENSHOTS PRODUCED AS HOMEWORK; AND GAMES DESIGNED IN AN AFTER-SCHOOL CLUB

In this chapter, I compare how students at the Cambridge school produced themselves as subjects across three genres of interaction: a focus group interview, drawings produced as homework, and games made in the after-school club. I also make reference to questionnaires given to students as well as my field note observations of classroom-based interactions. I am interested in how the production of subjectivity is related to the culturally-shaped, material resources with which meaning is made. I have therefore selected different types of resources, constituted in different social activities. Focus group interviews, Gaskell (2000: 46) notes, are characterised by particular social processes: "the objective of the focus group is to stimulate the participants to talk and to respond to each other, to compare experiences and impressions and to react to what other people in the group say". They involve the production of a group as an entity, "the development of a shared identity, that sense of common fate captured in the self-description 'we'" (: 46). Asking research participants to draw pictures is a different social process, in which the participant's individual perspective is demanded and valued. Signs are treated on the basis of their simultaneous, spatial emergence, rather than sequential production across time; in other words, syntagmatic relations are spatial rather than temporal. Whereas focus groups produce meaning primarily with talk, drawings are constituted by visual entities, including writing; this means that different cultural resources can be involved in communicative interaction. The semiotic and social resources with which data is generated has implications therefore for the meanings which are produced. My interest in this chapter relates to the implications of this for theorising gender in debates about learning and computer games.

Most of the data (i.e all except the games) analysed in this chapter were generated in the first few months of the Making Games project. We sought students' views about games and game-making in order to inform the early development of the software, particularly its visual design and the genre of game it should be able to produce (we had already selected 'role-playing and 'action adventure' as broad parameters). In the research proposal, we had noted the literature which indicated that game playing was significantly differentiated by gender. Although research in this area has examined a range of issues, there has frequently been a focus on the question of gendered preferences (Cassell & Jenkins 2000a; Graner-Ray 2002, 2003; Jenkins 2003; Gorriz & Medina 2000; Kafai 1996, 2000; Provenzo 1991. See Carr (2005) for a review of the literature on 'gendered preferences' in games). This question frames the issue of gender in terms of girls and boys liking different kinds of games. Preferences are then understood as contributory causes for different levels of engagement with games, with boys noted to play more games, more often, and more enthusiastically, with implications for play performance. Although a number of concerns are expressed with respect to these differences, there has been some emphasis on the educational consequences. Cassell & Jenkins (2000b: 11) argue, for example, that the "relationship between boys' comparatively higher interest in computer games and their comparatively larger representation in high-power computer jobs is not accidental". On the basis of this kind of claim, some researchers have sought to identify the circumstances under which girls might play computer games more, in order that eventually, more women might enter science and technology sectors (Cassell & Jenkins 2000a; Kafai *et al* in press). Attention has been paid to marketing strategies to target girls (Laurel 1998, 1999). There has also been significant work to identify how the content of games could be altered so that they appeal to girls more (Kafai 1996, 1998; Denner & Campe in press).

In the Making Games project, our concern was expressed in terms of differential levels of interest in making games, as well as range of experiences in game play which could inform game-making. On the basis of the existing literature, we wanted to identify whether the game-authoring software could be designed in particular

ways so that it took into account the experiences of our target audience (11-14 year olds), and particularly girls. The first phase of field work took place in the Cambridge school, and before the release of the first prototype. It involved observing the 6-week English, Media and ICT course on games referred to in the previous chapter, and which had been running at the school for a number of years, but without a production element. We agreed with the teacher that specific tasks and activities would be introduced to elicit data on students' game playing experiences, including homework assignments, questionnaires completed in class about media consumption and equipment at home, as well as focus group interviews after class, during the 15-minute registration period. Classroom observation of whole class discussions and group work also generated data. However, it proved difficult to translate this data into guidelines for the software developers. This was for two related reasons.

The first was the lack of vocabulary for articulating why some games are better than others in terms which went beyond comparisons on the basis of genre characteristics; so for example, in class, students indicated they played particular games or genres, but found it difficult to describe why they liked such games, or what it was about the game or the genre which appealed to them. This difficulty was not particular to students as children, since I noted that, as researchers, we also lacked a conceptual toolkit for describing games systematically. This is indicative of the limited amount of work pertaining to games as texts available at the time (2003). However, the problem we encountered in this respect is indicative of the difficulty of researching preferences without a language of description, a little noted issue in the literature on gendered preferences. The second reason was that students indicated different kinds of experiences, as well as evaluations of such experiences, across time. In field notes, I recorded that in whole class discussion, girls usually indicated they played *The Sims*[1], whereas in small groups and with pointed prompting, they demonstrated knowledge of further titles. Questionnaire data similarly painted a

[1] *The Sims* is a game in which players manage resources to meet the needs of simulated characters, who for example, need feeding, washing and putting to bed. The game has a domestic setting

different picture of experiences and access to game hardware than had been suggested by classroom observation and focus group interviews, for both genders. This suggested a relationship between the method of data collection and how students represented and/or understood their experience of games.

This finding is hardly novel within a constructivist research tradition. In this chapter, I would like to focus on its implications for the way gender has been theorised or dealt with as a problem in the literature on games and learning. It should be noted that gender is a relatively marginal consideration, since the emphasis is placed on how games are designed rather than interpreted. However, there remains an interest in identifying 'what girls like' in order to inform the design of educational games and encourage girls to play more commercial games for their perceived educational benefits. The work of Kafai (1996, 2000) is particularly significant in this respect, both for the extent of the research she has carried out as well as its influence on notions of gendered preferences (see for example Jenkins 2003 and Denner & Campe in press, who develop some of her arguments).

Kafai's research shares similarities with the activities undertaken in the Making Games project. She asked groups of students to make games using Logo and then analysed them. In writing up the research, Kafai (1996: 64) distinguishes between publications which "focus more on the games aspect than on the learning aspect". This establishes a distinction between the study of learning as a process and the study of the social, material conditions by which it is constituted. Such a distinction has been accepted in policy-oriented literature reviews on digital games and learning, in which the occasional reference to Kafai's work is made in relation to her conclusions about gendered preferences in video game play, rather than learning to make games using Logo (Kirrimuir & McFarlane 2004: 12). Kafai frames her research question as follows: "In designing [...] games, which features of commercially available video games would children choose to include in their own designs" (1996: 39). More specifically: "Given the choice, what kind of video games would girls produce if the design of all the features – genre, place, characters, and

interactions – was left to them?" (: 40). Games made by students are then analysed on the basis of signifiers of 'commercially available video games'; their signified is theorised as students' preferences with respect to such games. On the basis that girls' games do not include many such signifiers, Kafai concludes that: "It simply seems that most commercially available video games do not appeal to girls" (: 62). With respect to this, she argues that games designers should incorporate more female-friendly features – such as real-life, non-fantasy settings and non-violent, slower-paced interactions – as well as employ female designers, who can make games to suit female tastes. In subsequent work (Kafai 2000), she qualifies these conclusions by pointing out that the way in which girls and boys design games in Logo is related to the subject matter of the game – be it maths or science. However, she maintains that girls design games according to different models of design than boys, because the content of commercial games "is not necessarily suited to girls' tastes" (: 113).

Underpinning Kafai's conclusions is a model of meaning which separates meaning from form of expression: "children making games provided us with a window into their minds" (1996: 64). Meaning is made in material, historical circumstances – for example in students' use of Logo – but is theorised as a separate entity from such circumstances. It follows that such circumstances are conceptualised as a 'window', a transparent interface which allows largely unmediated access to children's "fantasies and ideas" (: 64). Such ideas are thus prior to their expression. Such a model of meaning has implications for theorising gender. Gender is understood as 'socialised' sex. Culture 'influences' how boys and girls behave, with popular media 'providing models' for sign-making (Kafai 2000: 113), but sex is posited methodologically as prior to signification; it is a variable which precedes game making. This can be seen in the logic according to which Kafai articulates her political aims: in order for girls to play more, it is necessary to identify designs which appeal to them more. This programme is based on the assumption that a sexed identity must first be in place in order for interests or preferences to be elaborated. Gender is socially 'constructed', but constructed on something irreducible and outside/prior to meaning-making. There are parallels here with a model of gender

which Butler (1993: 8) critiques: "Gender 'construction' implies a culture or agency of the social which acts upon a nature, which is itself presupposed as a passive surface, outside the social and its necessary counterpart."

Kafai's qualifications of her earlier work with respect to the subject matter of games can be understood in terms of the model of gender she works with. She notes that gendered preferences vary by context, with context defined as the content of signification: "In one context, I asked students [...] to design and implement educational video games to teach fractions to younger students. In the second context, I asked students to design and implement educational video games to teach younger students about the solar system" (2000: 91). Games about the solar system showed fewer differences with respect to gender. This variability is something which Kafai finds difficult to account for, but her discussion emphasises the importance of taking 'context' into account. The problem with this notion of context is that it seems to serve as an all-encompassing signifier of potentially endless qualifiers and adjectives (science games, geography games, games about medieval history, games about contemporary history, etc.), which strive to pin down 'gendered preferences' once and for all on the precarious basis of their illimitability. This makes the process of identifying 'gender-neutral' or 'girl-friendly' signs, to inform commercial game design, somewhat problematic.

Kafai's work is of interest in this thesis because it forces a clarification of the relationship between materiality (the body) and signification (or socialisation/subjectivity), which has implications not only for studying gender but also for theorising semiotic resource, as both a material and a social entity. Is it possible to talk about material differences without re-signifying such differences discursively? How might we understand materiality as invested by social norms/semiotic conventions? Is materiality 'subject to' socialisation or is it possible to study materialisation in its discursive making?

Kafai's work is also interesting in terms of its political strategy. It is not unreasonable to question the relationship between children's early engagement with technology and subsequent propensity to pursue their education in the fields of science and technology. However, the framing of this relationship in terms of 'interest', preferences and 'tastes' tends to overlook social and power inequalities within those fields (see Consalvo in press, for example, on why women leave the games industry). Moreover, although the introduction of a concept of 'context' serves to qualify and account for variability in meaning-making according to gender, the process by which children constitute such meanings, or such 'tastes', remains largely unexamined, because treated as a product of prior socialisation.

In the next three sections, I will examine how students in the Cambridge school constituted 'tastes' about games. I draw on Butler's theory of performativity to study how meanings constitute gender, and make gender into an observable phenomenon. If gender is constituted with language, as Butler argues, it follows that the semiotic resources available to produce gender shape how this is made. I will therefore focus on three kinds of data: talk, drawing and game. These data have been selected on the basis that they challenged the approach we took in the early stages of the Making Games project to identify what boys and girls liked about games. In consequence they remained relatively marginal in the development of the project, or more particularly, of the software, since it proved difficult to extract specific design guidelines from them. The games I analyse however were produced in the second year of the project, once a software prototype became available.

In Section 1, I examine the production of a gendered subjectivity in a focus group interview about games. Section 2 examines the production of gender in drawings which students in class were asked to produce as homework. Section 3 focuses on how students signify gender in games in the after-school club at the Cambridge school.

Section 1: Constructing gender with talk

At the end of the second session of the English, Media and ICT course, I asked for volunteers who would be willing to be interviewed during the 15-minute registration period about the games they played at home. I specified that we wanted people who played games. Several students put their hand up. Because of the project's interest in girls' experiences, I chose an equal number of girls and boys, six in total. I did not know the students well at this stage, although one student, Joshua, had spoken extensively in the two sessions of the course, on the basis of wide-ranging knowledge about games. He had indicated in class that his father worked for a major games company in Cambridge. I chose the other students on the basis that they stood nearest me at the time. There were three adults, myself, another researcher, and the education specialist from Immersive Education, who stayed silent during the interview. I had sketched out six broad areas for discussion, starting with the games they played and moving on to their impressions of the game-making process and how they would start making a game. The focus group interview took place in an empty classroom. We sat in a large circle, with the three boys and three girls sitting together. The section transcribed below is from the first few minutes of the interview.

1.	*F interviewer*	What kind of computer games do you play?
2.	*M interviewer*	Shall we go straight round? Yeah.
3.	*Sarah*	I just play…I don't really play action, I just play things like
4.		*The Sims* and just things that you can rule their lives and just
5.		make…Just have fun with.
6.	*Kate*	And I play with *The Sims* as well.
7.	*Jo*	And me. Yeah. I play *The Sims* on my… My dad has a
8.		different range of… he has our computer and a PlayStation[2]
9.		and when I'm with my dad I play like…usually
10.		*Lord of the Rings* and *Harry Potter* and sort of
11.		known games, like, not sort of… Games that
12.		have got books as well or films or TV programmes that I
13.		know of.
14.	*F interviewer*	Is that why you choose them?
15.	*Jo*	Sort of. I'm quite fussy and when I do read books, I
16.		can't read books that I haven't heard of. And so, that's
17.		probably why I choose them.

[2]PlayStation is a games console, a dedicated technology for playing video games and which plugs into the TV. The abbreviation for PlayStation is PS1 or PS2, depending on the version

18.	*F interviewer*	Okay. So just before we move on. You play with *The Sims*, what
19.		kind of platform do you play on? Is it on a PC? Is it on…
20.	*Sarah*	I play on the computer
21.	*Kate*	Yeah. I play on the PC.
22.	*F interviewer*	Okay. Have you got games consoles at home?
23.	*M interviewer*	Like PlayStations or?
24.	*Sarah*	I've got… I used to have a PlayStation, now I have PlayStation 2
25.		which I play sometimes. I play racing games.
26.	*Kate*	I don't have any PlayStations.
27.	*F interviewer*	Okay. And you've got a PC and a PlayStation, is that right?
28.	*Jo*	Yeah. My dad has a PlayStation.
29.	*F interviewer*	Right. Yeah. Okay.
30.	*Joshua*	I play Action Adventure, Shoot 'em Ups,
31.		fighting games, on PS2.
32.	*F interviewer*	Have you tried any other platforms as well?
33.	*Joshua*	Like *The Sims*?
34.	*F interviewer*	Like the Xbox[3] or PC?
35.	*Joshua*	Oh I've played on the XBox and the Game Cube[4],
36.		PlayStation 1.
37.	*M interviewer*	So you've not played on a PC?
38.	*Joshua*	Well, I haven't really got a PC. I have consoles instead.
39.	*Simon*	I play adventure and strategy games. I hate racing games.
40.		*Formula One* is probably the only racing game
41.		I like. I have a PC if the PlayStation isn't working.
42.	*M interviewer*	Can you name the titles of some games you
43.		play?
44.	*Simon*	*Spiderman. Crash Bandicoot. Silent Hill. Silent Hill*
45.		is a horror game. I like adventure for my PC. We get to
46.		buy some from the internet.
47.	*M interviewer*	Do you play any online games?
48.	*Simon*	Yeah. Loads. *Age of Empires*. Some take up one
49.		fifth of my computer space, they are so huge. And *Star*
50.		*Quest*, and I've forgotten what other games
51.		I've got.
52.	*Jak*	I like more strategy computer games like *Red Alert*
53.		and *Age of Empires* because I like the idea of
54.		building moon bases, going out killing people
55.		and that. Yeah.
56.	*Simon*	Yeah.
57.	*Jak*	I play *Red Alert* on PC, which is good. It's better than
58.		PlayStation because it's got better graphics. You've
59.		got more options on what you can play. And I like
60.		extreme sport games as well. I like *Tony Hawks*[5].

[3] Xbox is a games console made by Microsoft
[4] Game Cube is a games console made by Nintendo
[5] A skateboarding game set in an urban environment

Students' statements appear to confirm research which indicates that access, preferences and choice of platform are differentiated by gender (Cassell & Jenkins 2000a). The girls' preferences support arguments that girls tend to play 'improving games' in the home (mainly on the PC), with parents (and particularly fathers) distancing their daughters from "masculine" technologies and interests (Thomas & Walkerdine 2000). However, as the interview developed, contradictions appeared in students' answers. I will firstly deal with the pattern of Sarah's responses, as she seemed to be an experienced player.

Initially, Sarah states that she plays on the PC. When asked whether she has a console at home, she adds that she has a PlayStation on which she plays racing games (lines 24-25). Later in the interview, when asked about the PC's merits, she answers:

> *Well on the PC you are not as into it as on the PlayStation, I find. Because I play* Tony Hawks *on the PlayStation and I just got into it a lot more than when I play on* The Sims *or the internet or anything.*

When the group is prompted again shortly after about what PC games they have played, Sarah interjects that she plays mainly on the PlayStation. The interview then shifts to how games are designed, and Sarah comments:

> *I've looked around shops and I've looked for things for my age and for me and I can't really find anything. I find racing and that, but my brother would just buy that sort of thing.*

Here, the racing games are identified as her brother's, the implication being that she plays them on a compromise basis, as an exception in a general rule. Towards the end of the group interview, she adds:

I think some games are quite good when it's all about the same thing like fighting and killing [...] If it's a boxing match and then you walk round town and kill people, it's not very good. But some games you have to have a bit of difference, like you can drive a car one minute, then walk the other.

It is not unreasonable to conclude from this that she has played games that involve fighting and killing, and furthermore, that she has played a wide enough range of those kinds of games as well as other genres to comment on some broad design principles. At that point, her concern is with quality of design, not nature of game play – in contrast to her first remark (line 4).

In the questionnaire completed at the end of the course, four weeks later, in answer to the question 'Which are your favourite computer and video games?', Sarah writes *GTA: Vice City*[6]. When she is asked, as a homework assignment, to draw a screenshot of a game she would ideally like to create, she represents a racing game. The racing games may be her brother's, but they would seem to provide sufficient enjoyment for Sarah to consider creating her own.

There is similar, if less pronounced, movement in the other students' responses. In the questionnaire, Jo lists *Tombraider*[7] as a favourite game, and indicates that she has a *GameBoy*[8]. In a subsequent interview, Kate says she has played "*The Sims* and *Harry Potter* and other things" – the 'other things' belonging to her father and some to her friends[9]. Although Joshua initially denies all knowledge of PC gaming, he later offers an evaluation of it, arguing that its value lies in the quality of its graphics. Simon initially says he only plays on the PC when his PlayStation is broken, but when pressed, emphasizes how much space online games take up on his computer.

---

[6] *GTA Vice City* is one of the titles in the *Grand Theft Auto* franchises. It was the biggest selling video game of 2002. The player takes the role of a mafia member who has to do substantial amounts of 'fighting and killing' to protect the family's interests

[7] *Tombraider* refers to a series of games featuring the character Lara Croft, who has adventures in which she has to defeat many enemies

[8] A handheld games console

[9] Kate did not complete a questionnaire

In the questionnaire, Simon lists platform games as among his favourite, although they are not mentioned in the interview. Jak similarly lists *Spiro* as one of his favourite games, which is more of an adventure than a strategy or extreme sports game.

As Kafai argues, young people's preferences are variable, although it is not clear here which signified for 'context' as content could account for these variations. The games with which students claim familiarity, as well as the evaluations they make of those games, shifts over the course of the interview, the method of data collection as well as the period of the game studies course. Variations appear more pronounced in some cases than others – in this instance, Sarah's.

Some other means of accounting for these variations is necessary. Analysis of students' discursive constitution of their tastes suggests that the way students interpret their game-playing experience alters according to the functions of their representations within the group interview. I return to the transcript of the interview to demonstrate this.

Motive in the focus group interview

In making the first contribution to the discussion, Sarah presents her game-playing in terms of difference – first pointing out what it is not. The repeated use of the word "just" (lines 3-5) works as a disclaimer, which presents her preferences in terms of a carefully chosen selection. Similarly, the "just" in "just have fun with" (line 5) is a modality marker which portrays her own game-playing as lighthearted and wholesome. Her remarks divide games, and by implication game players, into two kinds: *The Sims* and other simulation games with which people have fun; and "action" games, associated with other kinds of interests.

When Jo goes on to mention other games apart from *The Sims* (which the two girls have already mentioned), she distances them from her own personal gaming habits

by saying she only plays them with her father (line 9), as part of her wider engagement with media, and upon the recommendation of others (line 16). This positions her game-playing as a social activity, relating to social interactions away from the console, and therefore not as a lonely or obsessive interest. Jo's remarks, like Sarah's, construct games as divided into two kinds; those whose quality is ensured by others (other media, other people) and those that have no such 'independent' guarantee. Games players are either of the kind carefully to select games or to play indiscriminately. Game platforms are also divided into two kinds. Although Jo's father is portrayed as the owner of both the computer and the console, the use of "our" (line 8) presents the PC as the family's technology but the console ("a", line 8) as her father's personal platform.

The use of "and" at the beginning of Kate' and Jo's responses (lines 6 and 7) suggests a desire to emphasise similarity of tastes across all three students and thereby establish a social relation between them. It creates a norm, based on gender lines. The logic of the dichotomies which Sarah and Jo establish is not contained in the oppositions themselves but in the values attached to them, which reflect certain popularly held notions surrounding games and gender – games are boys' toys, played by anti-social and addicted geeks on dedicated technologies. This portrayal of games cannot simply be understood in terms of the girls' pattern of access to games – rather the meanings they make on the basis of games and game-play are constructed to present a particular subjectivity, defined in the first part of this interview in terms of gender. In other words, the relationship between signifier and signified is motivated by the students' desire to enact a gendered subject position.

If gender is signified differentially, as I have just argued, it follows that mutual recognition of difference is necessary to maintain boundaries. By positioning themselves in opposition to the girls' preferences, the boys bolster the dichotomous classification system and so constitute their own positions as male. However, they also seek to protect themselves from some of the negative discourses surrounding men and gaming.

Joshua, Simon and Jak describe their gaming habits in terms of genres (lines 30, 31, 39-41, 45, 52, 60). This identifies their experience in terms of a broad range of individual titles, many of which the students may not have played. It also displays a vocabulary that is particular to games; games are evaluated according to genre-specific criteria rather than against other media. The genre categories referred to are those used by the games industry to market titles at different kinds of audiences and give some indication of their playing potential. In using them, the boys identify themselves as a target audience, as gamers, and therefore as authorities on the subject of the interview.

The use of genre categories places emphasis on quantity (see Simon's remark line 48), with access presented as unrestricted – the "we" in line 45 presents Simon's game playing activity as a peer-based activity, in opposition to the supervision from adults which Jo describes, and also to her suggestion that game players are anti-social. Indicators of taste and judgment are introduced to underline that discrimination is nevertheless being exercised, pointing to the speakers' sophisticated knowledge and expertise. Simon mentions the single genre that he does not like whilst finding one exception within it (line 40) and Jak argues for the special technical qualities of PC gaming (line 57). Simon's confirmation of Jak's tastes (line 56) plays a similar role the girls' use of "and" (lines 6 and 7), presenting tastes, or meanings, as shared among the three boys.

The boys do not present gaming tastes that may be seen to appeal to women (platform and adventure games), although these are mentioned in their questionnaires. Joshua and Simon initially both dismiss the PC as a legitimate gaming platform (Joshua assumes I refer to *The Sims* when I ask if he has played on a PC – line 33).

The students deploy similar discursive strategies to construct their identities as game players. Their positioning is temporal, as the shift in answers demonstrates.

Knowledge of games is displayed to the extent that it enhances desired positions over the course of the interview. When the discussion shifts to how games are designed, Sarah redefines her preferences in terms of PlayStation games and abjures the PC, so as to maintain her position as expert in a new discursive context. This takes place during an exchange with Joshua, who is the recognized class gaming expert. It is by agreeing with him and then starting a discussion about the merits of different platforms that Sarah is able to display knowledge of game design.

Talk as semiotic resource

The way in which gender is materialized in the focus group interview is a function of group talk. The literature on interviews as a method of data collection often emphasizes that the interview is not mere information-passing but "a joint venture, a sharing and negotiation of realities" (Gaskell 2000: 45). Research on focus groups suggests that "the group, as distinct from a number of people in the same location, is more than the sum of its parts: it becomes an entity in itself (: 45). Group talk takes place over a period of time: "participants take account of the views of others in formulating their responses and commenting on their own and others' experiences" (: 46). Although some researchers (i.e. Robson 2002; Janis 1982) see this as a limitation, leading to a phenomenon labeled 'groupthink' which is perceived to contaminate the individual's 'true' response, others argue that focus groups highlight the social process by which individual views are formulated (Catterall & Maclaren 1997; Callaghan 2005). It is this latter conception of focus group methodology which seems pertinent here.

The students were selected for the interview on the basis of their game-playing experience. In being asked questions, they were effectively asked to present their subjective experience in such a way as to justify their inclusion in the group. Their contributions can be understood as strategies to position themselves in relation to each other and to the interviewers over time, as the discussion develops. In the first section of the interview, social identities based on gender norms are established. This can be understood in terms of the selection of participants; although I did not

explicitly state that I wanted a 'balance' of girls' and boys' views, my choice of students as well as how the interview initially started off – going round the group, in which the three girls and three boys sat beside each other – made gender norms reference points on which claims could be made with authority. In other words, the group as an 'entity', in Gaskell's terms, was signified in gender terms. Students' 'contradictory' talk can be understood in terms of how the discussion developed in time, how they were asked to have an opinion on various topics, and thus how norms were maintained in relation to different practices and points of authority; in asking students how they would design games, I called on them to justify their inclusion and position in the group on the basis of different practices, compared to asking them to list the games they had played.

Callaghan (2005) makes an argument for seeing focus groups as habitus in the making. Focus groups tend to lead to the formation of group identity, precisely on the basis of perceived shared experience: "the process of identifying both who you are and how you are different from others [in focus groups] is important in defining identity and is an expression of habitus. It sets the boundaries of expected behaviour within the group and the ways in which one group distinguishes itself from others." Contributions by individuals are thus not the individual parts of group talk, but demonstrate the 'common' bases for understanding/making any contribution, which draw reference from beyond the group itself to the wider socio-cultural context of discussion. Callaghan's interest in 'talk-in-interaction' means that she conceptualises group talk as both formative and expressive, reflective of common experience as well as 'confirming' such commonality. A similar argument could be said with respect to the focus group in this chapter. Access to games software and hardware is differentiated by gender, although this is gradually changing (Bryce & Rutter 2003). Sarah and Joshua may, for example, have played and enjoyed many of the same games. But the representations they produce of their gaming experience are one of the ways in which they signify their gender (as well as their age, expertise, etc), to themselves and to others. Gender differences are not just 'reflected' in their talk but

re-normalised, precisely in order to produce a social collectivity which achieves a level of reality in talk.

Collectivity however is achieved by producing an outside, a point of difference which secures the boundaries of the collective. In talk, this is achieved in part through the deployment of genre terminology. Students position themselves as subjects often by classifying games into two or more genres. Although these genres change over the course of the interview, there is one general pattern. The three boys consistently use specialist terminology associated with the industry, game reviews and web sites, where games tend to be celebrated and are the main subject of discussion. The genre categories used by the three girls are less conventional (with respect to game classifications). In the lesson immediately before this interview, the teacher had examined the characteristics of different game genres. Although these students could therefore be assumed to recognise the dominant genre definitions, they choose not to position their game-playing in these categories.

On the basis of Hodge and Kress' (1988) definition of genre as a form of social interaction that establishes conventions in the semiotic practices of a group of people, the students' responses can be explained in terms of where they position themselves in relation to that group of people; namely, people who make, buy and play games. The three boys demonstrate high affinity with terminology that is found in publications that market and evaluate games, and in doing so uphold and identify themselves with the social arrangements that these interests enact. In using a different method of classification and terminology, and thereby showing low affinity, the three girls align their interests against a different social configuration. These two positions are mutually constitutive whilst positioning boys and girls differently with respect to games as an institutionalised genre.

However, the different and often contradictory ways in which students evaluate the design of games indicates that the demonstrated level of affinity functions to produce a certain subjectivity within the group. Genre conventions are not signified

in abstract, as Kafai's content analysis suggests, but rather position students in certain ways at particular times, and in relation to each other. This is particularly clear when students discuss how games should be put together. Both Jo and Sarah recommend that games need more variety, although Sarah also emphasizes the importance of design coherence. The three boys, however, describe their own proposed approach to the making of games in terms of replicating existing models. So whereas the girls position themselves as critics of existing genre conventions, the boys portray themselves as imitators. The girls do not critique conventions *per se*, however, but suggest genres should be mixed and matched more. It seems likely therefore that such conventions are not questioned on the basis of design principles but within a context where a gendered subjectivity is achieved by taking a particular stance on gaming. The way students interpret and evaluate conventions, therefore, is not some reflection of an inner essence, but about claiming particular social affiliations.

Criticizing games for their lack of variety is a familiar trope, often repeated in gaming literature from web sites to academic books, with the blame often placed on conservative publishers unwilling to venture beyond existing winning formulas. Critiquing genre conventions is therefore a common way of signifying critical distance from institutionalized authority, and is not inherently associated with gender positions. It is also to some extent the privilege of those who evaluate games rather than make them, as in making a game, conventions are necessary to produce intelligibility.

It is worth noting the range of experiences and meanings which are not symbolized in the dichotomous classification system which underpins the signification of gender. Butler (2003: 3) argues that "the subject is constituted through the force of exclusion and abjection, one which produces a constitutive outside to the subject, an abjected outside, which is, after all, 'inside' the subject as its own founding repudiation." What is excluded in the focus group interview is not only what is explicitly signified as rejected (not action games, not the PC), but signifiers, which in this setting, are

more ambiguous in their power to produce gender. Comparison of Jo's responses in the interview and the questionnaire suggest that certain games, such as *Tombraider*, as well as consoles, such as the *Gameboy*, are positioned, through their absence, as abjected entities, unsymbolisable in this context. This is not to deny that questionnaires also produce data in particular ways, and different to talk. Opinions are counted rather than elaborated, which perhaps leads to an emphasis by participants on number and variety; one might expect, then, questionnaires to show a higher number of experiences than expressed in focus group talk, through the sheer effect of listing and filling boxes. This is not to argue that questionnaires are more reliable indicators of experience. However, if one assumes that students listed games that they were at least a little familiar with, it suggests that both the boys and the girls excluded games, in the interview, which challenged simple dichotomization. Platform games, handheld games, casual internet-based gaming are not mentioned. That which threatened the binaries signified in talk is positioned as unintelligible.

The reformulations of subjective experiences enabled by group talk illustrate well Butler's conception of gender as a regulated process of repetition. Gender is not a state attained prior to the group, but a signifying practice, materialized here in talk, and with many variations, precisely because of shifting social affiliations and processes of exclusion in context. It is important here to distinguish between performance and performativity. Students are not putting on a show to reveal what they really think; rather it is as members of a collectivity that they come to constitute their subjective experience as meaningful.

In this section, I have focused on how sexual difference is signified as a dichotomous, normative system in talk. In the next section, I analyse the production of gender in still images.

Section 2: Constructing gender with visual design

In the third week of the English, Media and ICT course, students were given a homework assignment: to draw the screenshot of a game they would like to design. There were two specifications: it had to fit within the role-playing genre and should have a science-fiction setting. This was because those were the main parameters we had agreed at the time for the first prototype of the game-authoring software. The purpose of the assignment was primarily to inform the development of the software, by generating ideas for visual design, content (software assets), and mechanics of play.

During the third lesson, genre conventions had been covered as a topic by asking students to sort screenshots from commercial games into categories. The categories and criteria for selection employed by different groups had been discussed. Extracts from science-fiction films had been shown and discussed, in order to compare conventions in different media.

Nineteen drawings were handed in. I have selected a sample of six for detailed analysis, on the basis of three criteria. First, the drawings are indicative of the range of styles across the group. Second, I have taken those that seemed most finished and polished across that range; for example where attention had been given to colouring in, to representing entities in some detail, and to clarifying relations between entities in various ways, such as through writing or composition. Although all of the drawings can be interpreted and I have examined each of them in detail, some offer a relatively more secure basis for interpretation than others: because of the categories available for the analysis of visual data in the literature; because of my own experience and ability in interpreting visual data; because of the skill of the sign-maker; and because of their choice of subject matter. This means that the sample is geared towards my own assumptions about what is 'interpretable'; this is not to imply that the remaining images are not interpretable, but that I have chosen images which seemed most suited to my methods and experience (of games, of analysis),

and which are indicative of a range of approaches. The third criterion is an equal number of boys and girls, three of each.

Unlike in the focus group interview, meanings in the images below were not made in interaction with researchers or peers, but presented in a complete and finished form; by their mode and genre (homework), they are signified as conceptually complete, rather than texts in development, subject to revision and reformulation (Kress 2003b). They were submitted to the teacher, as part of a routine school-based activity, rather than developed as part of a specially selected group of experts. The genre of homework as a semiotic and social practice is characterized by individual responses, indicative broadly of individual competence or thought, rather than the representative expression of a collectivity. The social circumstances of data generation were thus different, compared to the focus group. Drawing as a practice makes available specific kinds of semiotic entities and resources. Relations in images are spatial rather than temporal (Kress & van Leeuwen 1996), which is not to say that they are not made or interpreted in time, but that textual relations between signs are made spatially. Images are constituted by specific grammars denoted by vectors rather than verbs, depictions rather than nouns, and salient entities rather than subjects (Kress & Mavers 2005). This has implications for how meaning is produced, and thus gender sought for.

The drawings below were scanned from the original, although I have cropped them slightly to remove students' names. It is worth noting that three of the students also took part in the focus group discussed in section 1: Jak, Simon and Kate.

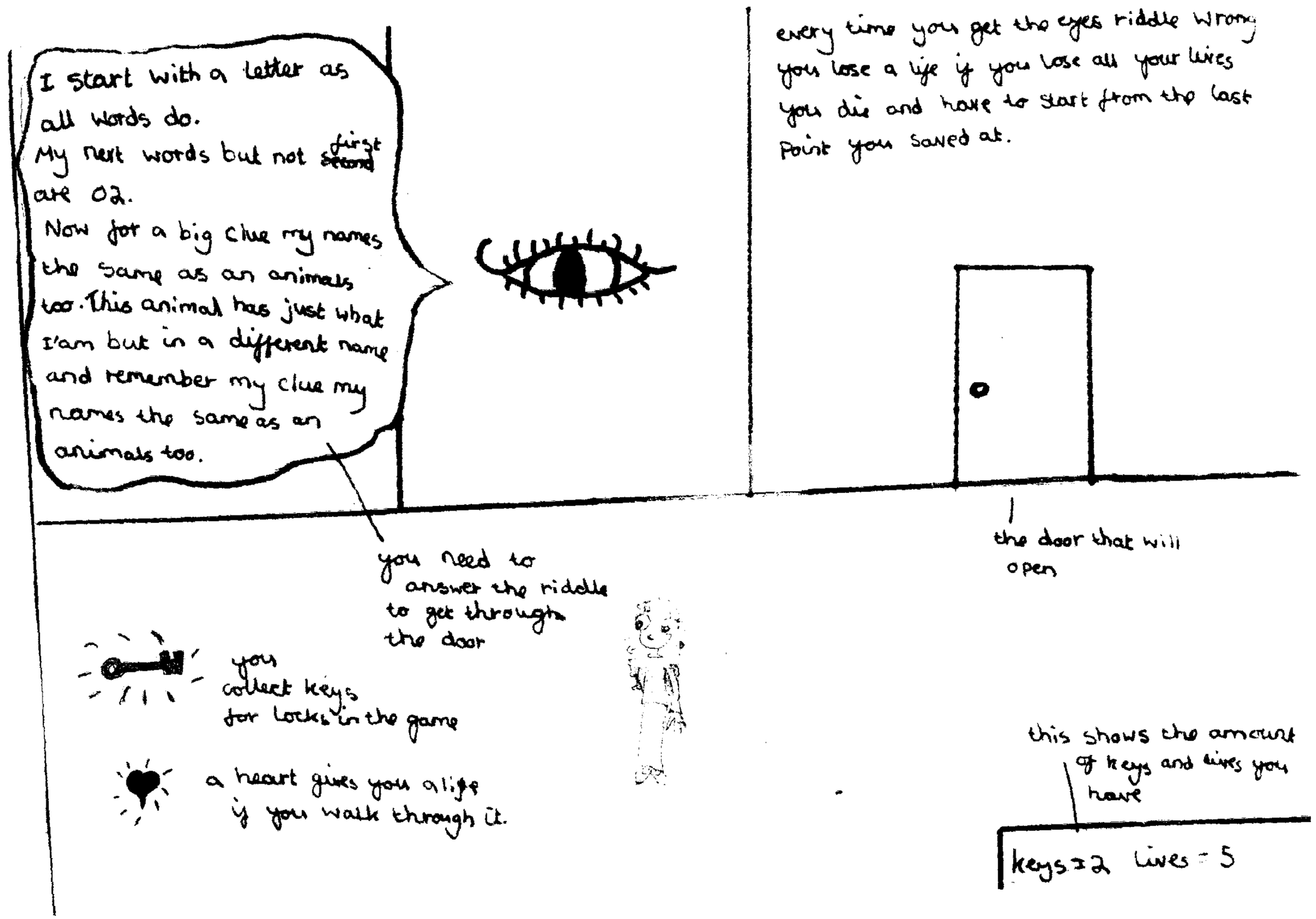
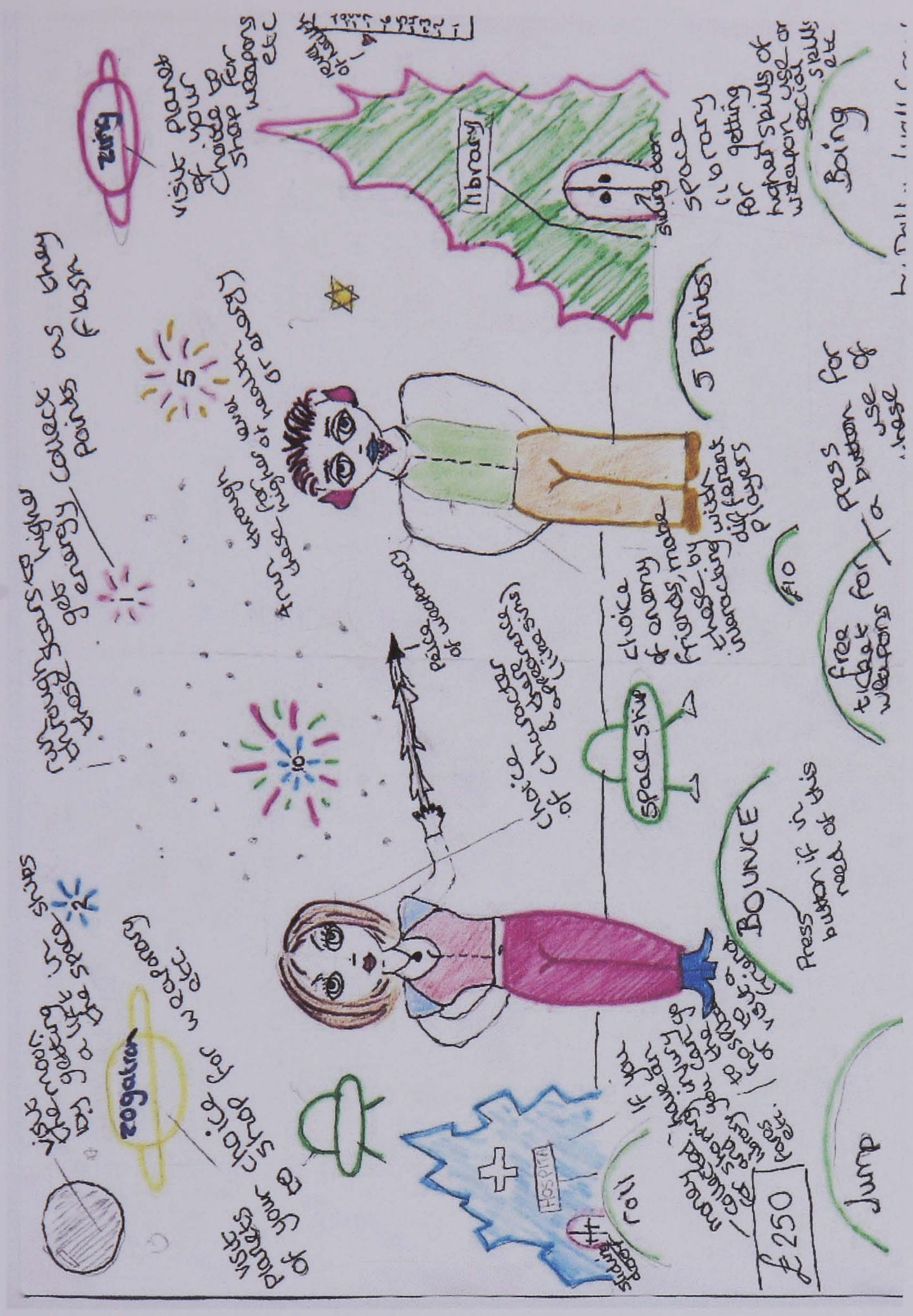


Figure 5.1: Kate' screenshot


Library
Quiz
visit planets of choice, buy, share weapons etc
Arcade
Space Shop
Zogatron
BOUNCE
Press button if you need it
Space Ship
HOSPITAL
Jump
£250
Boing
Free ticket for weapons
Press button to use weapon
Choice of enemy friends, make loose by interacting with different players
Choice of enemy friends, make loose by interacting with different players
Choice of enemy friends, make loose by interacting with different players

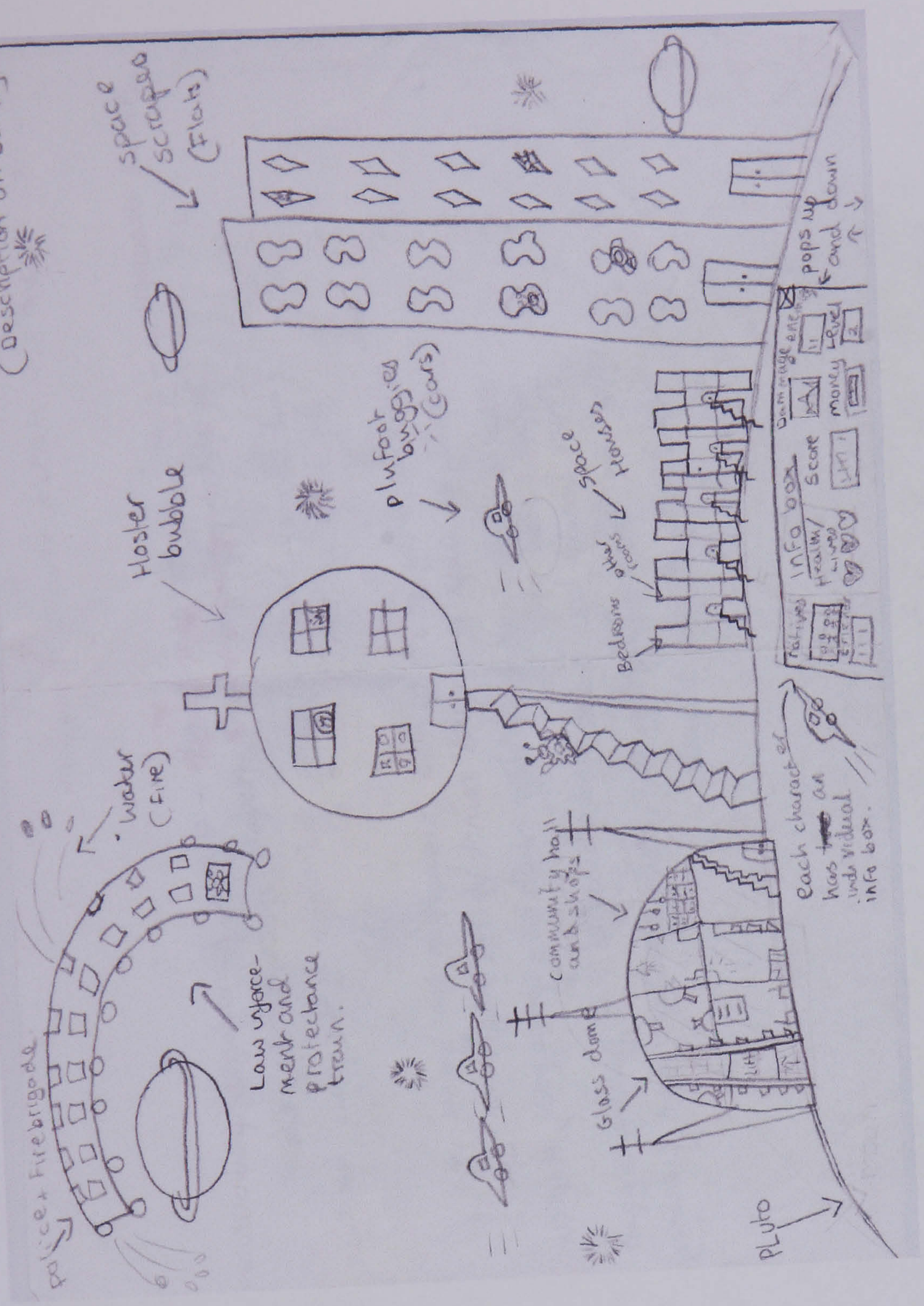


Figure 5.3: Janet's screenshot

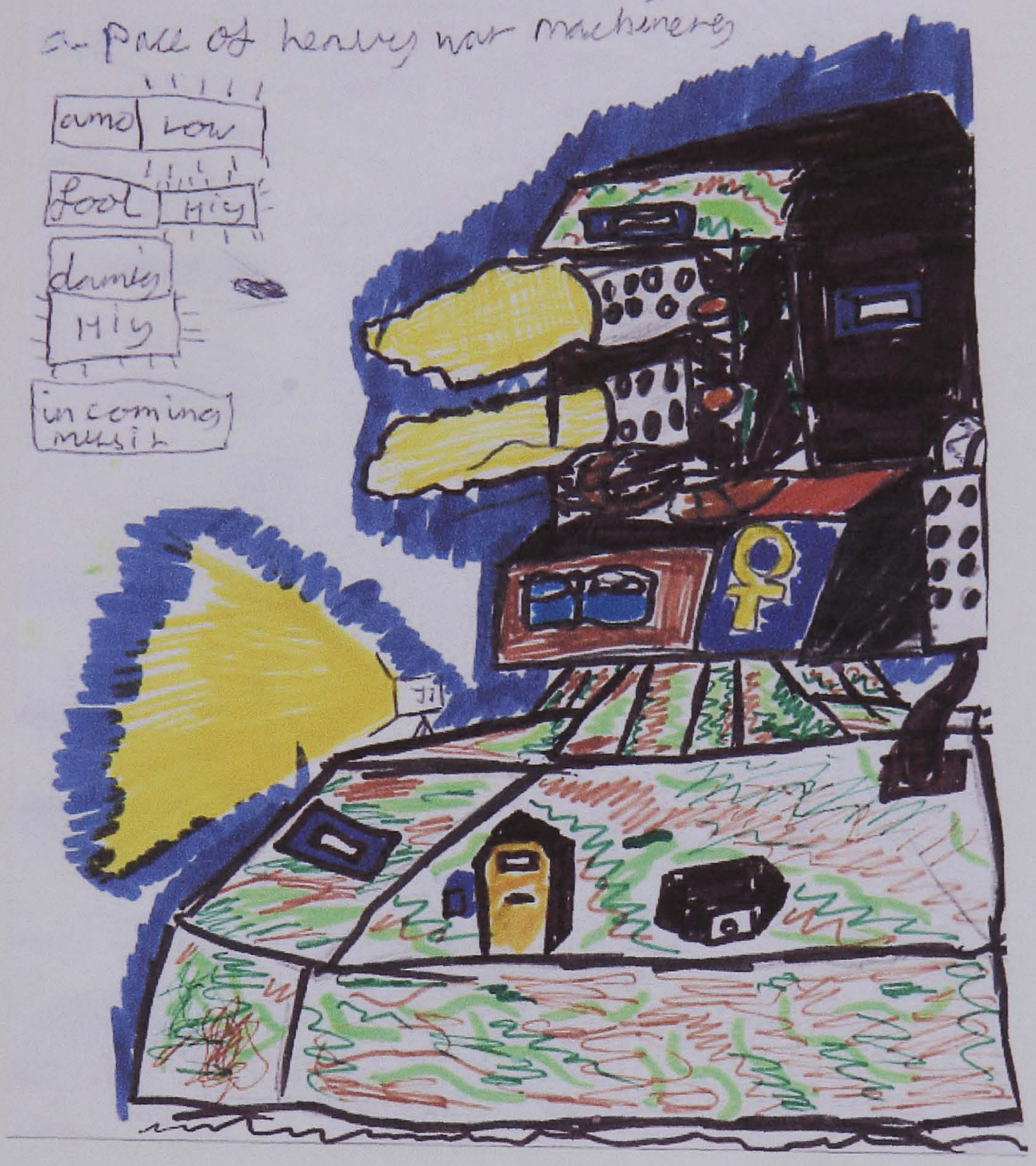


Figure 5.4: Jak's screenshot

Figure 5.5: Tom's screenshot

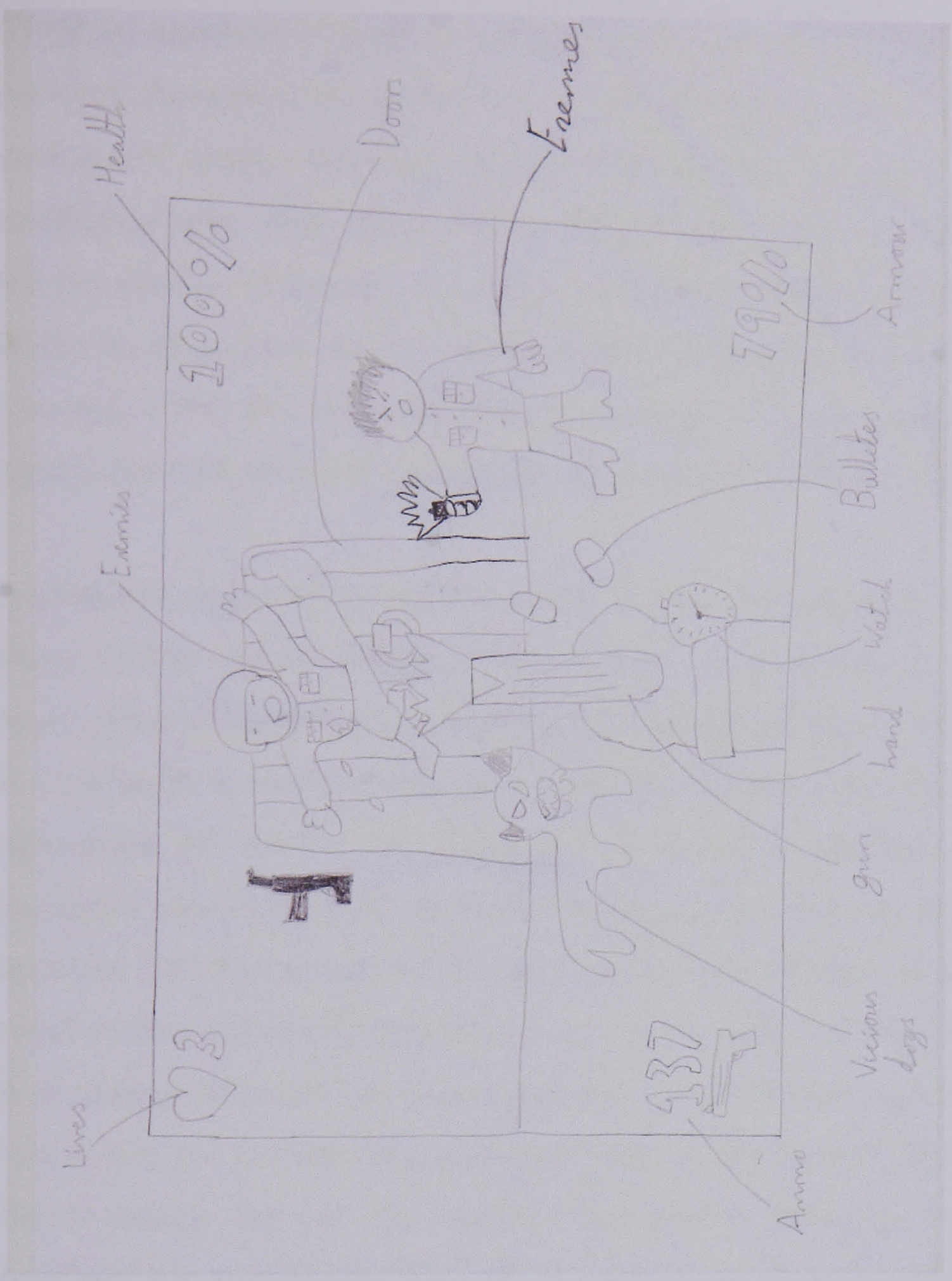


Figure 5.6: Paul's screenshot

The girls' drawings (Figures 5.1-3) show the potential experiences a player might encounter *throughout* the game. They do not look like a single moment in a temporal sequence of events, but represent all the potentials of a game precisely without actualizing them. With visual entities labeled objectively, low naturalistic modality and the absence of vectors, the design principles underpinning these drawings are similar to those used for the representation of analytical processes (Kress & van Leeuwen, 1996: 89). They are designed to present a static taxonomy of the whole game's essential attributes rather than represent a part of it in a life-like way.

Structurally organized as labels, it is the writing that identifies the function of the drawn entities and the relations between them. Such entities are therefore visually decontextualised and so become generic, a "typical example", rather than connected to a particular location or moment in time. So in Janet's drawing, the fire engine is represented but not the fire (although it is named in parenthesis). The viewer is positioned broadly at eye level and at a distance, which has the effect of objectifying the scene. The background is left plain and the representation of depth reduced, with visual entities classified hierarchically across the page. In Liz's drawing, the planets to be visited are at the top of the page, the avatars in their current status across the middle and the buttons they can select from at the bottom. Objects are posed. In Janet's image, the cars are identical and shown sideways. In Liz's and Kate' drawings, the avatars face the viewer, as they would in a photograph, but do not establish eye contact. The blank expression of Liz's characters depicts them as objects of contemplation rather than as subjects with whom the viewer may enter into an imaginary social relation. The lack of a frame constructs the scene as an objective representation rather than a subjective perspective.

Whereas the girls' drawings depict features as more or less stable and timeless and thus conceptual, the boys' drawings develop a narrative: they present an unfolding drama, foregrounding pleasure arising from sensation and visual spectacle.

Figures 5.4-6 represent an almost identical moment; one represented participant shoots down a number of others (in Jak's drawing, this is achieved through the representation of an "incoming missile" flying in from the left). In Tom's and Paul's drawings, the perspective and angle position the viewer as a player, and therefore as the protagonist in the represented narrative. The framing of the images enhances this, by indicating that the image shows a subjective field of vision. In deploying the conventions of game design to address the viewer directly and establish the narrative as subjective and personal, the image articulates a demand structure, which demands that the viewer/player take action, rather than contemplate the scene dispassionately. The form of action required is established through vectors (shooting guns, a target symbol at the end of the line established by the avatar's gun), and perspective. The diagonals in Tom's drawing, for example, create strong directional thrusts which lead the eye straight upwards. These imply a forward movement. In Jak's drawing, engagement with the viewer is sought at the level of visual spectacle rather than action, but the transactional process (the tank is under attack) and the use of colour suggests a desire to arouse an emotional, subjective response from the viewer.

The coding orientation [10] in all three drawings is sensory, allowing pleasure principles to dominate. In Tom's and Jak's drawing, this is achieved through colour, which becomes a source of pleasure and affective meaning; the brightness of the colours conveys excitement and adventure and the saturation instantiates a hyper-real modality which Kress and van Leeuwen (1996) associate with fantasy. In Paul' drawing, the viewer's sensory appreciation is invited as a result of the size of visual objects (notably the gun and its falling shells) as well as certain physical details, such as the dog's drool and the drops of blood spurting out of the enemies. This emphasis on the senses discourages more distant, dispassionate forms of engagement.

---

[10] Coding orientations are the sets of principles which inform the way texts are coded by specific social groups, in specific institutional contexts. Kress & van Leeuwen distinguish between four types. (1) Technological coding orientations, which are designed to make the visual representation "effective" as a "blueprint". (2) Sensory coding orientations, which are used in contexts in which the pleasure principle is allowed to be dominant, such as certain kinds of food advertising. (3) Abstract coding orientations which are used in academic and scientific contexts to reduce the individual to the general. (4) Naturalistic coding orientation, which remains the dominant one in society and is used to address people as members of the same group (1996: 170)

In all three drawings, writing is kept outside of the frame and repeats visual entities, but does not expand or elaborate on them. The game's icons are placed in the frame's corners and function primarily at a visual level. Writing, which is the privileged mode for constructing abstract academic and scientific knowledge, is subjugated to the principles of the visual spectacle.

Motive in the drawings

The drawings are characterized by certain patterns identified in the focus group interview. The girls' drawings combine elements from different genres, which has the effect of distancing their authors from the categories and their conventions taught in class. Liz, for example, indicates that the actions in her game include shopping, jumping, bouncing, running, visiting and shooting, mechanics of play which are not identifiable with any single genre. It is noteworthy that the mechanics of play familiar from *The Sims* (such as accumulating money to visit shops and interacting with other characters in order to befriend them - Liz and Janet), and characteristic of the puzzle genre (Kate), are combined with shooting, dying (Kate), 'taking damage' (Janet) or 'being injured' (Liz). These criterial aspects of shooter games are not, however, incorporated into the central space of the drawings, but added in at the sides or on the back, and often through writing. Liz's drawing does feature a gun, located centrally, but the character holding it is not aiming at anything[11]. Spatial composition therefore means that the shooter genre attributes are positioned as marginal. In Janet's and Kate' case, they do not contribute to the drawings' symmetry, and in Liz's, the operational function of the icon (the gun) is not included.

---

[11] I have discussed this image with a number of colleagues, who disagree with this interpretation. I would argue that the gesture and body position of the female character is not signified as 'aiming' because (1) the female character is not looking in the direction in which she is pointing the gun and (b) the apparent target is not portrayed as fearing for his life, or showing an appropriate response to being 'aimed at'. 'Aiming' with a gun in a game is different from pointing with any entity in any genre, it means threatening to hit or kill; in this instance, the portrayal of both characters does not suggest 'aiming', which is why I think the gun's operational function within the genre of games here is not realised.

This suggests two things. Firstly, the girls' drawings are designed to demonstrate conceptual understanding of the essential features of games as a general category. The references to shooter games in Janet's and Kate' drawings serve to generalize a single representation (shooter games are often portrayed in popular media as representatives of games as a whole). They carry out an analysis of a general phenomenon, that is, they show a "typical" game screenshot. This way of seeing objects is characteristic of scientific and academic contexts, which are characterized by an effort to reduce the individual to the general, and the concrete to its essential qualities. In adopting this perspective, the girls constitute themselves as good academic students.

Secondly, the girls' drawings include references to shooter games but these are restricted to the margins of the drawings. There are a number of possible explanations for this. Whilst perceiving shooter games to be central to a representation of games in general, the students do not apparently seek to identify their own tastes with it. This is similar to the stance adopted by the three girls in the interview, who portrayed "action games" as marginal to their own preferences. At the same time, "action" or shooter games were depicted as representative of games in general, with other genres, such as platform or adventure games, barely getting a mention. In both sets of data, games are portrayed as being either violent or non-violent, a binary opposition which sustains a view of games as gendered.

The girls' drawings present them as academic students able to generalize from the particular, and simultaneously, to carry out this generalization in a gendered way. The point here is not so much that their drawings show how girls "see" games, but that this way of seeing games is strategic, and achieves a certain social purpose. Just as students' interpretation of games in the interview signified gender, so the drawings cannot be understood without consideration of the way in which students enact a gendered subjectivity.

The boys' drawings realise a similar strategy, by reproducing certain notions about the particular male pleasures of gaming. These have often been a subject of discussion in the literature on games and gender. Alloway and Gilbert (1998: 108), for example, argue that video game playing is "a recognisable social site within which to practise masculinity" precisely because of the ways it depicts violence – violence in video games is ritualistic, inviting the player to bask in the visceral, visual excitement of destruction and disengaging critical, reflective faculties: "most of the boys [in their study] had difficulty providing any critical reflection on the games they played in terms of storylines or violence, and the violence in the games was naturalised and made commonplace within their speech" (: 111). Alloway and Gilbert argue that the boys are unconscious of the processes that shape them and educational interventions should focus on encouraging them to be more critical consumers. These conclusions omit the performative functions of students' sign-making. The signifiers they produce are selected to constitute intelligible social beings. It is by constructing games as gendered that the students construct themselves as gendered.

The process is not unconscious, in the sense used by Alloway and Gilbert. In other homework, Jak emphasized the educational dimension of his game-playing, pointing to the historical accuracy of his WWII games. Although one of Liz's favourite games is *Crazy Taxi*[12], according to the questionnaire completed at the end of the course, she excludes the racing genre from her drawing. The drawings are thus not simple reflections of the games these students play and enjoy. How students interpret games, how they value, play and interpret are social processes, learned over time and through interactions with others. But the signs they produce about games cannot be interpreted simply as a reflection of these determining processes. Instead, they are ways in which subjects come to constitute themselves as social beings in context. This means that gender is the effect, not simply the cause of these images. The students do not portray games in stereotypically gendered ways because they *are* boys and girls, but because they *signify* themselves as such.

---

[12] A racing game

Drawing as semiotic resource

In producing drawings, the students show a game rather than tell me and each other how a game functions or what it is life. The analysis suggests two different ways of showing games: one in terms of an exemplary, representative selection, bringing together different moments in time and generic processes in games; the other in terms of a freeze-frame showing part (Jak) or all of the screen, as seen by the player at one moment in time. Both ways of showing suggest that the drawing is '(a) part of' or 'fragment(s) of' (a) game(s) – the parentheses illustrate the contrasting visual design strategies. While the focus group discussion *told* of preferences and experiences and how they contrasted or were similar, what is *shown* in the drawings is games *are they are* (Kress 2003b). As sites of display, the drawings are conceptually complete, by which I mean they show what there is to know about games. While the focus group interview evolved over time, the drawings are out of time; they just show what games consist of. The relation between the participants in the act of sign-making is an 'objective' one, rather than subjective. I do not refer here to how the images address the viewer, but rather to how the drawings as genre (homework) and mode signify; showing (rather than telling), in this context, constructs the object of discourse as simply there.

Gender is materialized in the different ways games are said to be. The social distance achieved in the girls' drawings towards the object of representation – through colour, composition, and visual modality markers - can be understood as the production of an academic 'way of seeing'. The drawings have aspects of the genre of 'diagram', as described by Kress (2003b); they have a low colour saturation and are labeled with writing. 'Diagram' suggests a particular social purpose as well as institution; it evokes a world of scientific abstraction. It addresses an audience able to understand that the exemplary spread of signs 'stand for' a larger entity (games as a genre), in a form which is not part of the everyday world. Whereas in telling me about their gaming experiences, students validated their claims in respect of their subjective experiences, the girls here show a theoretical object, the legitimacy of

which relates to the academic context rather than their own experience. The differences in these processes of legitimation are a function of differences in drawing and telling as social semiotic resources.

In representing a screen, complete with its frame, the boys show games in their materialized form. This realises a strategy similar to that described by Barthes (1977) in terms of the photographic message. Barthes argues that the special status of the photographic image is that it claims to be a replica of reality; it claims not to translate reality but reproduce a fragment of it. The boys' drawings are not photographic but they claim to show the world as it is materially, in a way that is 'real' rather than abstracted. Legitimacy is argued for on the basis of an absence of a mediating medium, as there is for example between reality and talk. In this sense, the drawings are shown to have meaning irrespective of their author's subjective experience; they are signified as mirrors to reality, a mechanism of transcription. This can be understood as a process of naturalisation of the cultural. The boys could have picked any moment from a shooter game, including scenes in which the avatar goes shopping or chats to other characters; such moments are not rare. In selecting one part of a game, one static moment in a temporal continuity, they show the kind of scene which in popular representations of games is precisely what identifies them as masculine. It is precisely because the producer and the viewer will each recognize and acknowledge this way of seeing as masculine that they remain effective as statements of gender identity. However, the subjectiveness of this claim, the very process of selection, is disavowed in the drawings precisely because the drawings appear to simply illustrate how games are. In Barthes' terms, the drawings function by denying the connoted message and presenting the image as denotation only.

Section 3: Constructing gender with games

I invited an equal number of boys and girls to join the after-school club at Cambridge, in the second year of the Making Games project. As indicated in Chapter 3, numbers and participants varied across the six sessions. However,

following the first session, only two girls came to most sessions, compared to an average of six boys. Additional boys asked to join the club (and did so) whereas no new girls were recruited. In the first session, also, girls asked to work together whereas the boys worked mainly individually; there seemed to be some security in numbers here, with three girls, for example, starting work on a game analysed below. There was a similar pattern in a mixed summer camp we ran in the first year of the project, in which it proved difficult to get girls to sign up. Gender was a signifying practice in mixed settings precisely by the withdrawal of girls from game-making activities. This makes analysis of gender production with respect to game-making as a semiotic resource somewhat problematic, since there is a more restricted set of data to work on.

In analyzing the games which were produced in such settings, the signification of gender is realized with a specific piece of software, constituted by ready-made entities. The range of semiotic entities available with which to make meaning seems much more restricted than with either talk or drawing. Students had to make do with what the software could offer in terms of visual and aural entities, as well as a restricted logical (rather than semiotic) grammar by which they could be combined. The same entities appear across all the games: the same locations, the same first-aid kit, the same set of drawers. In the previous two sections, I analysed the production of gender by focusing on students' selection processes; the words they used, the spatial composition, the inclusion or exclusion of signs. In the software, what can or cannot be included as a semiotic entity is limited largely to what the software has to offer. With respect to the analysis of the games, gender is consequently under-determined, I think, because the same entities appear in all the games (which is not to say they have the same meaning in all the games). With respect to the production of the games, certain entities however became over-determined, by which I mean they became invested with significance which seems almost parodic of certain gender norms. For example, in introducing her game at the competition event in the third year of the project, Alice stated: "we[13] chose the Victorian environment

[13] Alice made a game with Janet and Liz, who I referred to in Section 2

because that seemed the most girly one at the time, because all the other ones were like sci-fi and stuff". The Victorian locations[14] consist of the inside of a house, and could thus be said to be resonant of domesticity. Alice is referring to a game she made in the second year (and which I discuss below). In the mixed setting in Cambridge, the Victorian environment became a signifier of 'girly' (and, conversely, all the others were made signs of boyishness), meanings which bear witness to the investment made in certain entities in order to maintain gender-defining dichotomies. Alice's statement here can be understood in terms of the retroactive production of meaning which underpins the concept of performativity: the Victorian environment becomes the occasion, in the mixed school, for a set of phantasmic investments to accrue, and which consequently is used to rally, mobilize, even produce the very social constituency it appears to represent. It is made into a sign of 'girlyness' in order to signify those who use it as girls; in other words, it does not represent a pregiven constituency, as Alice's statement implies, but is deployed strategically to create such a constituency. It is noteworthy that in the Cambridge club, only girls described entities in terms of their 'girly' qualities, an indication of the necessity of claiming a small minority of entities for themselves in order to protect their gendered subjectivity in a club consisting largely of boys. By default, most entities were 'boyish', an effect of game-making which highlights the differentiating relations by which texts, and signifying subjects, come into being and power is exercised.

I will examine two instances of the materialization of gender on the basis of the game-making software as a semiotic resource. The first is a game started by Alice, Janet and Liz, and which Alice worked on alone following the first session. The second is a game by Simon, to whom I have already referred in sections 1 and 2. I analysed successive versions of the games, but here my focus is on the signification of gender in the final version of the game rather than on its historical evolution.

---

[14] See Chapter 3 for an illustration of this location 'theme'

Alice's game

The game is set up as a mystery for the player to resolve. Much of the game involves working out significant from insignificant objects (objects which delay or do not enhance the player's progress through the game). A series of apples left in a corridor are identified as being either healthy or unhealthy, with the player asked to "choose wisely". The reference to wisdom here is suggestive of a coming-of-age story in which the player learns how to act and behave appropriately within a particular environment.

The written messages in the game provide explanations of objects and of the conditions under which the player is acting. For example, upon finding a dagger, the player can examine it to reveal the message: "Lady Hosiepol committed suicide with this very knife and now haunts this house...WATCH OUT!!!!". The message forewarns of danger but does not state what it might consist of, creating a level of suspense whilst also giving information. Playing the game therefore involves acting with the aid of a friendly presence who helps the player. The implied in-game character and player character are positioned as being equally fearful of the dangers ahead, and one knows only a little more than the other.

Alice's game draws on a fictional form often targeted at young women – the murder mystery featuring a young heroic detective, such as is featured in the Nancy Drew series. The narrative is unusual for a game – it is psychological rather than action-based (the aim is to find out why a Lady committed suicide). The genre of narrative which Alice draws on is found across different media platforms, rather than just games primarily. This is somewhat reminiscent of Jo's remark in the focus groups that she only played games based on other media franchises.

Alice goes to some length to evoke a helper character. The nature of this relationship enacts familiar conventions about male and female relations – none of the boys had messages with a helpful, convivial tone in their games. In her choice of narrative

genre and creation of mood, Alice is constructing her player as female, and in so doing, positioning herself also as a female designer. This process is not just a consequence of Alice's experience of games – in discussions in the club, she indicated having a wide experience of games and expressed a particular liking for platform games. In selecting from this experience to inform design work, she emphasised features which defined her audience in terms of gender.

Simon's game

I have discussed two boys' games from the after-school club in Chapter 4. It is worth returning to Simon's game here. As I indicated in Chapter 4, Simon stated that he drew inspiration from one of his favourite games at the time, *Silent Hill*, which he expressed a liking for because of its near-impossible puzzles. Following an opening message which states that the player has been imprisoned by a maniac, Simon does not develop the storyline. Instead, he focuses on certain structural conventions of games, including the arrangement of weapons, and creation of a training level at the start of the game. The basis on which Simon organises his game positions him as a game fan, but also in a gendered way. He emphasizes aspects which are often said to appeal to dedicated male gamers (Cassell & Jenkins 2000a; Jenkins 2003): the use of fire power, inclusion of fantasy-based action, and skills which are acquired through practice and attention.

Simon could have drawn on any aspect of the *Silent Hill* games, including the highly developed narrative. This is de-emphasised in favour of the creation of fearsomely challenging puzzles. One cannot deduce from this that Simon is not interested in well-developed narrative or 'realistic' characters, as Kafai's methodology might suggest; in fact, his list of favourite games in the questionnaire he completed is dominated by games with these two elements. Rather, the basis on which Simon configures his game realises a particular social identity in the group - the knowledgeable, well-experienced gamer. This identity is also gendered. It is because members of the group are likely to recognise and acknowledge an interest in

weapons and ludic design, as well as a sci-fi setting, as 'male' interests that Simon's game is effective as a statement of gendered subjectivity.

The game-making software as semiotic resource

Alice and Simon make games which identify their authors' gender in normative ways. Such games could be interpreted in such a way as to corroborate Kafai's findings: girls make games which feature social interaction rather than aggression; boys emphasise weaponry and fantasy settings. However, I would like to return to the notion of parodic meanings mentioned above, and suggest a way of understanding the games in terms of Butler's (1993, 1999a) discussion of drag. Rather than talking about games or drawing still images, the students here are making games. The reason their games re-enact game-based gender norms is that it is precisely in relation to such norms that games are intelligible. In making games, they are 'impersonating' game designers and the attributes and acts which identify such a social and institutional position. The students' actions could here be understood in terms of miming the very norms by which games are signified as gendered entities, by using the same kind of semiotic resource with which such norms are realised. In her discussion of drag, Butler (1999a: 186) argues that "the structure of impersonation reveals one of the key fabricating mechanisms through which the social construction of gender takes place". In imitating the signification of gender norms in games, one could argue that the students' games implicitly reveal the imitative structure of gender itself. The effect of the games is precisely to reveal how a text achieves cultural intelligibility. In this sense, the games can be understood as a parody of the mechanism for the construction of social norms and semiotic conventions with respect to games.

This does of course raise a question about the perspective from which the games might be understood as a parodic performance of norms. I am not suggesting that students here instrumentally disidentify themselves from semiotic conventions. The concept of drag in Butler is both specific and general; drag is what certain people do, but it is also a way of understanding gender in general: "to claim that all gender is

like drag, or is drag, is to suggest that 'imitation' is at the heart of the heterosexual project and its gender binarisms" (1993: 125). Drag can therefore be a way of conceptualising a semiotic practice. It is important to note that although this conception denaturalises gender, it is not inherently subversive. Alice and Simon appropriate norms and in the process could be said to re-naturalise or re-idealise them. However, they do so with semiotic resources which open up possibilities for transforming such norms, not so much by making subversive, 'gender-neutral' games, but by re-iterating and re-signifying norms from a particular social position. If norms or conventions are never simply maintained, but always remade, or made anew – in new games, and new situations – it follows that making a game means designing in conventional ways in order to be understood, but also transforming such conventions and adapting them to one's situation.

The concept of drag brings certain practices and events in the club into view. One of these I referred to above; Alice's description of her game at the competition event. In naming the Victorian environment 'girly', Alice seems to both uphold as well as undermine the credibility of the process by which semiotic entities come to be invested with gendered norms. She upholds them insofar as she re-iterates such norms. But the circumstances of her statement exposed to some extent the tenuousness of her claim. The game competition event brought together students from the Cambridge and the London schools, and all students presented their games. However, none of the students at the London girls' school had used the Victorian environment, with most using the sci-fi environment. Alice's description, in such a setting, highlighted the very contingency between the Victorian environment as semiotic entity and its retroactive signification as 'girly'. It is possible that the choice of the somewhat dismissive term 'girly' implies recognition of the irony of Alice's own claim.

I indicated in Chapter 4 that the after-school club at Cambridge was to some extent organised around the notion of 'playable' with students asked to play and comment on each other's games regularly. Playing a game is different from talking about it

insofar as interaction is with a text rather than with a person; it is different from drawing a screenshot because the act of communication involves not displaying the world but offering a set of potentials for textual realisation. Alice's and Simon's games were played by other students in the club; in other words, their games, as semiotic textual entity, were actualised by different bodies. The practice of play undid the meanings invested in entities by the game-makers. Alice's game was realised by boys mainly, who gave her feedback on its design, which she incorporated. Similarly, Simon's game was actualised as text by girls. The practice of play thus permanently contested the meanings which game-makers produced in writing rules, and suggested the openness of texts to re-signification and transformation. This is not to imply that playing games is somehow less normative than other social practices. However, playing other students' games involved appropriating and re-signifying the entities provided by the game-maker to one's purpose as a player. Gender was thus materialised not only in how students made their game but in how they and others played it. Although Alice and Simon signify the gender of their 'ideal' player (themselves in effect), their texts were actualised by a range of players, and at the competition event, by people external to the club and who interpreted their games in different ways. This is not an argument about the 'openness' of texts to interpretation in general, but specifically about play in games, and the way in which play can be accounted for in terms of the actualisation of logical rules as semiotic, textual entities. As Aarseth argues (1997), semiotic processes in game play involve the physical construction of the text; in the after-school club, games were designed to signify the gender of their maker but were played by others, and in the presence of the maker. Play did not overtly subvert the text's conventions, but they were actualised in physical acts carried out by different bodies. The material indicators of girliness or boyishness, in this sense, were realised semiotically by a range of bodies, a process which seems to illustrate well Butler's notion of drag.

Conclusion

In this chapter, I have made two main arguments: (1) gender is not prior to sign-making but is materialised in (material) signs, and (2) the semiotic resources available to make meaning shape how gender is materialised. In Section 1, I investigated the signification of gender in group talk, and suggested that gender was one point of reference (among others) against which claims could be made with authority in a group situation, precisely because the group had been assembled on the basis of students' subjective experience as experts; they were in effect asked to represent different social constituencies beyond the group (girls/boys, gamers), whilst instantiating such constituencies within one specific group. Talk in interaction was used to produce the different collectivities against which students identified themselves. I then examined a number of drawings, focusing on how 'showing' the world differs from talking about it, with students adopting different strategies for legitimising their way of seeing games. My argument was that the way students 'saw' games was not a reflection of prior determining processes, but was motivated to enact a subjectivity within context. In the third section, I explored some of the issues involved in studying gender in game making and game play, and suggested that play, as physical construction of text, made semiotic entities subject to re-signification by different bodies. Semiotic entities in the software were however invested with meaning in order to confer legitimacy on subjects – in this case, entities were made into signs of 'girly' and 'boyish' as a way of maintaining boundaries between social positions within a mixed context.

The analysis challenges the idea of 'gendered preferences' by showing how preferences are constituted in respect of social semiotic norms rather than prior to them. This is not to deny patterns in preferences. But preferences, or I would say evaluative judgments, are a function of what has been experienced, and the significance of that experience at a point in time: "distinctions in taste between male and female players mirror patterns in games access and consumption that spring from (very) gendered cultural and social practices" (Carr 2005: 478). If judgments

are an effect of normative practices, an effect therefore of power, there has to be some question about the political effectiveness of challenging norms and power relations on the basis of preferences as some kind of authentic expression of gendered being. This is Butler's (1993: 35) argument when she points to the political consequences of positing sex as prior to meaning-making:

> *Insofar as power operates successfully by constituting an object domain, a field of intelligibility, as a taken-for-granted ontology, its material effects are taken as material data or primary givens. These material positivities appear outside discourse and power, as its incontestable referents, its transcendental signifieds. But this appearance is precisely the moment in which the power/discourse regime is most fully dissimulated and most insidiously effective. When this material effect is taken as an epistemological point of departure, a* sine qua non *of some political argumentation, that is a move of empiricist foundationalism that, in accepting this constituted effect as a primary given, successfully buries and masks the genealogy of power relations by which it is constituted.*

Sex from this perspective is not simply what one has, or a static description of what one is: "it will be one of the norms by which the 'one' becomes viable at all, that which qualifies a body for life within the domain of cultural intelligibility" (1993: 2). The paradox of 'gendered preferences' is precisely that it attempts to resist norms in the name of a subject which it itself enabled by such norms. Although this constitutive constraint does not foreclose the possibility of changing norms/semiotic conventions, it identifies change as a reiterative or rearticulatory practice, immanent to power, and not a relation of external opposition to power.

This argument means that the concept of 'games for girls' displaces from view the very power relations likely to affect their educational opportunities. The identity categories that Kafai upholds in effect limits in advance the possibilities for action

that feminism is supposed to open up. The conceptualization of subjectivity as an effect, that is materialised discursively, creates possibilities for re-signification and transformation that are insidiously preempted by arguments that take identity categories, such as 'girl', as foundational and fixed.

CHAPTER 6

THE INTER-DISCURSIVE PRODUCTION OF SUBJECTIVITY IN THE AFTER-SCHOOL GAME-MAKING CLUB IN LONDON

In this chapter, my interest is in how students arranged their games to identify themselves as particular kinds of people within a group. My focus is on the way students positioned their game in relation to popular texts and franchises in order to establish themselves as fans. Chapter 5 focused on the production of subjectivity in different genres of interaction. This chapter focuses on the production of subjectivity in one genre of interaction (game making) and one site of production: the after-school club in the London school which ran for five weeks in the second year of the Making Games project. The rationale for looking at how students performatively produced themselves as particular kinds of fans is that knowledge of, and enthusiasm for, media products seemed to constitute an important resource for social differentiation and affiliation. I therefore examine how knowledge of media products, as displayed in students' texts, constituted social identities in the club.

In using the term 'fan', I do not seek to identify the students in the club as somehow different from general audience members. In fan studies literature, fans have been defined as being obsessed with something such as a band or actor (Hills 2002) or having "excessive enthusiasm" (Jenkins 1992: 12) about media products. I do not use the term in this sense, but rather to describe how students establish affiliations with points of authority defined in terms of media products, including their audiences. Jenkins (1992) argues that part of the pleasure of fan fiction[1] is in signifying the original text and testing readers' or viewers' ability to recognise the signified; such texts are aimed at people with a certain kind of knowledge. This is

[1] Fan fiction is a broad term which refers to fiction written by audience members of media products and which is based on characters or settings associated with such products. It is not usually formally published but can often be found on web sites associated with media products, and is usually aimed at people who share knowledge of such a product

also the case with the games made by students at the London school, which is why the term remains appropriate.

In Chapter 4, I argued that students in the after-school club in Cambridge developed texts on the basis of what could be considered playable, and analysed games by Jak and Simon. In London, students were similarly asked to play each other's games regularly. However, the notion of 'playable' seems to have been interpreted differently in London, and related to the degree to which students' texts were associated with media franchises, namely *Sailor Moon, Harry Potter, Star Wars*, and to some extent, Aladdin; although this latter one seems to stretch the definition of a franchise somewhat, it was a named reference point – I return to this below. This shares some similarity with the approach taken by Jak and Simon, although in London, the emphasis was more on making the game of the film/book: the game of *Star Wars* the film, for instance. Rather than making a game that was like another game in terms of its challenges (Simon) or incorporating material from a variety of media products (Jak), the students in London based their game on settings, characters and storylines associated with specific products. It is for this reason that I think of their games in terms of fan-produced texts, or akin in some ways to fan fiction. However, it is important to note that references to such products are much more explicit in some games than others. The use of the term fan is both descriptive and also strategic on my behalf, as a way of foregrounding certain aspects of the texts.

One of the reasons for thinking about students' games as a kind of fan fiction is that it highlights the way in which students re-work conventions in context. In Chapter 1, I argued that there was a lack of clarity about how to conceptualise 'what is produced' when young people make texts. The Making Games project was justified in terms of developing 'game literacy', a subset of the concept of media literacy. Buckingham (2003) defines literacy as a social practice rather than a set of norm-referenced outcomes. This definition is based on the view that reading and writing (in various media languages) only make sense when studied in the context of the

social, material practices of which they are a part. The rationale for describing semiosis across different symbolic systems in terms of an analogy with literacy is to highlight the importance of widening notions of literacy in schools beyond verbal language as well as to emphasise that meaning-making is situated. The term 'literacy' is thus justified in terms of advocating policy change. It brings together a wide variety of practices, from photography to game-making, whose value can be argued for in terms of a notion which is central to current educational policy. The term is also understood to offer conceptual advantages, by highlighting what diverse social practices have in common; literacy ceases to be a particular kind of skill and serves instead to conceptualise the basis of social action in general. This challenges a view of literacy as a specific kind of cognitive ability, and thus of a curriculum as distinct areas of cognitive competences.

The concept of literacy however creates a number of difficulties, which I discussed in Chapter 1. The 'social turn' in literacy research involved conceptualising audiences and readers of texts as 'active'; texts, including media texts, are not simply decoded but actively made sense of. From this perspective, the difference between reading and writing cannot be described in terms of different mental processes (input and output) but rather different material practices. However, textual production sometimes remains justified in terms of encouraging students to be more 'critically reflective', 'explicit' or more 'deliberate' (e.g. Dyson 1997). This suggests that 'writing' is somehow more 'active' than just reading, an argument which places reading and writing on the same scale but in different positions within a hierarchy. This betrays a concern with justifying writing whilst conceptualising both reading and writing as semiotically productive. A more consistent argument however would emphasise that reading and writing involve different semiotic resources for transformation, rather than the same resources transformed differently (and thus more explicitly or reflexively).

Use of the term literacy tends to be indicative of an emphasis on the realisation of norms rather than the study of their strategic transformation; to use Dowling's

(2005) distinction between competence and performance, attention is given to the degree in which the sign-maker recruits institutionalised norms and categories in their reading/writing of the text. As I indicated in Chapter 1, research focusing on the situated nature of meaning-making uses the term literacy to describe a teaching programme or a curriculum. Buckingham (2003) for example conceptualises media literacy as a teaching process rather than a set of abstract competences (he criticises the BfI[2] model of media literacy for reducing literacy to such competences). Although this avoids separating meaning from its experiential realisation, it leaves open the question of how to describe what young people are doing when they make texts if one's concern is not primarily with curriculum design. The games analysed so far in this thesis could be described in terms of the literacy competences they betray, but the focus would then be on how such texts instantiate certain institutionalised norms (such as curriculum objectives). Without contradicting this approach, is it possible to conceptualise what it is young people are doing in making games in a more generic sense, focusing on motive and the strategies enacted by sign-makers in producing texts?

In the first section of this chapter, I outline the concept of design, which I argue can be used to conceptualise textual production. I understand all my data to consist of instances of design, in that the texts are configured in particular ways to produce particular social relations and subjectivities. The term is defined here because I then focus on the textual strategies pursued by students in aligning their texts with media products. My use of it is however tentative and experimental rather than conclusive, in that I am examining what the term achieves in informing the study of texts. However, it seems useful in clarifying the concept of motive. If motive is understood as strategic process, design can be understood as emergent convention, resulting from motivated semiotic action, and the basis on which motivated semiotic action takes place. Motive is an explanatory principle for how emergent convention is constituted. In this sense, design relates to texts whereas motive relates to subjectivity.

---

[2] British Film Institute

Section 1 outlines the semiotic concept of design. Sections 2 to 5 consist of detailed analyses of students' games, focusing on the production of fan social identity. The conclusion returns to the concept of design and its usefulness in conceptualising students' work.

Section 1: Defining design

In some of the literature dealing with multimodality and multiliteracies, the term 'design' is used to describe semiotic production (Cope & Kalantzis 2000; Gee 2003; Kress 1998, 2000, 2003a; Jewitt & Kress 2003; New London Group 1996). Definitions of the term relate in part on the object of study. Gee (2003) uses it to conceptualise the way in which game players construct the game text through play; here, design is a necessary corollary of interactive texts, which require people to organise their own trajectories through rule-bound structures. In the New London Group's (1996) statement on 'designing social futures', distinctions are made between Available Designs, Designing and the Re-designed to conceptualise meaning-making resources as dynamic processes rather than stable entities. In Kress (e.g. 2000), design is an activity carried out by social agents as they transform semiotic resources to realise their interests as meaning-makers; here, design is a necessary corollary of the concepts of transformation and interest, described in Chapter 2. In this chapter, I will draw on Kress' development of the concept.

Kress develops the concept of design to address certain limitations with existing terms in theories of meaning-making, notably 'competence' and 'critique'. These are closely associated with the concept of literacy, with literacy often conceptualised as a competence, and degrees of literacy conceptualised as moving from 'functional' to 'critical'. Kress does not situate design as an alternative to these terms but as an additional consideration, justified with respect to the influence of 'new media' on textual production (Kress 2003b).

Design and competence

'Competence' is often what is looked for in young people's meaning-making. This endeavour is based on the assumption that semiotic resources are 'used', rather than transformed, and therefore that meaning derives from abstract sets of conventions, rather than made by social agents: "current theories [of semiosis] describe the use of an existing stable system and of its elements rather than of remaking and transformation. That is, individuals are seen as users, more or less competently, of an existing, stable, static system of elements and rules" (Kress 2000: 154). Within such a model of communication, individuals either 'possess' competencies or fail to possess them, in which case, they cannot make meaning. Change and conventionality are defined in opposition to each other, rather than understood as mutually constitutive. Little consideration can be given to the diversity of conventions across social contexts, or the various forms of social and cultural knowledge involved in making meaning.

The notion of competence is based on the premise that a known set of skills can be 'mastered'. This idea is compromised when such skills are poorly defined or changing very quickly. Rollings and Adams (2003) state that in the video game industry, there are few established indicators of 'competent' game design; the conventions of games have not been extensively formalised. In addition, the way games are made is changing quickly, in response to social and technological developments. Games as a genre are therefore an instance of Kress' argument about the pace of contemporary social change and its significance for semiotic theory:

> *While a semiotic theory which could not easily account for change was never adequate to the facts of semiosis, it may have been sustainable in periods where change was less intense than it is at the moment...A semiotic theory which does not have an account of change at its core is [...] inadequate and implausible in the present period* (2000: 154-155).

It follows that, according to Kress (: 155):

> *An adequate theory of semiosis will be founded on a recognition of the 'interested action' of socially located, culturally and historically formed individuals, as the remakers, the transformers and the re-shapers of the representational resources available to them.*

This motivated process of re-making is referred to as design.

In this study, I have conceptualised students' games as design processes (in the semiotic sense) in that I have attended to individuals' strategic re-making of semiotic resources rather than to a description of the abstracted semiotic conventions which the games instantiate. In this sense, I have not constructed my data as evidence of competence.

Design and critique

The concept of critique implies that knowledge is both social and political: "critical literacy [...] proposes that literacy learning involves learning to understand the socially constructed nature of knowledge and experience" (Hall 1998: 185). In media education, it concerns teaching and learning about the processes that produce texts and their audiences (Buckingham 2003). A critical reading would involve not only reading the words on a page but also being aware of the social interests which such words enact. McLaren (1988: 214) provides the following summary:

> *Critical literacy[...] involves decoding the ideological dimensions of texts, institutions, social practices, and cultural forms such as television and film, in order to reveal their selective interests. The purpose behind acquiring this type of literacy is to create a citizenry*

> *critical enough to both analyse and challenge the oppressive characteristics of the larger society [...].*

Lillis (2003) describes a critique-based approach to the study of students' texts as an oppositional frame, which serves as a lens through which many dimensions of such texts can be seen, including the impact of power relations on textual production, the centrality of identity in meaning-making, and the nature of situated, institutionalised textual practices. However, certain aspects of critical literacy, and the associated concept critical pedagogy, have been problematised (e.g. Ellsworth 1989; Gore 1992, 1993). Gore (1992: 66) notes that critical pedagogy can end up being highly prescriptive without acknowledging its own involvement in power relations, imposing for example, "a requirement on teachers to do the work of empowering, to be the agents of empowerment", without recognising that teachers are themselves in positions of power. Alcorn (2002: 11) points to a similar contradiction in the notion that textual production should be concerned with 'penetrating' or 'decoding' the ideological nature of conventions: "how are subjects, who are subjects precisely because they have been interpellated by the discourse of ideology, able to overcome ideological victimisation". Alcorn's comment here points to the models of power and subjectivity which characterize certain approaches to critical literacy (though by no means all). His argument is that the notion of 'decoding' posits textual production as a purely cognitive act; however, "too often, logical and informative arguments have no effect on the commitments students have to ideology" (: 25). Buckingham and Sefton-Green (1994) also point to the problem of students 'doing' critique in the same way that they might 'do the Tudors' or 'do Shakespeare'.

Kress (2000: 160) distinguishes between design and critique in the following way:

> *Design rests on a chain of processes of which critique – as distanced analytical understanding – is one: it can, however, no longer be the focal one, or be the major goal of textual practices. Critique leaves the initial definition of the domain of analysis to the*

> *past, to the past production [...]. The task of the critic is to perform analysis on an agenda of someone else's Design. [...] Critique and Design imply deeply differing positions and possibilities for human social action.*

Design is based on a different conception of power, compared to critique; less dualistic (oppressors versus oppressed), and more complex, particularly in respect of the interrelationship (but not equivalence) between power and subjectivity. Returning to Lillis' notion of critique as a lens through which to see texts, I would suggest that design foregrounds certain aspects of texts: the "deliberate deployment of representational resources in the designer's interest" (Kress 1998: 160); and the social, semiotic strategies which students pursue in context to achieve subjectivity with textual production.

The general idea of design is not new, as Kress (2000) indicates. There are similarities with Buckingham and Sefton-Green's (1994) conception of media production as a "social space in which students can be sanctioned to explore their own identities and emotional investments in the media, in a way that is much more subjective and 'playful' than is the case with critical analysis". The concept of design does not usurp other descriptions therefore, but it provides a theoretical frame with which to conceptualise students' texts, in terms other than just critique or critical analysis.

Analysing design in this chapter

In the next four sections, I describe students' games in terms of the strategies they realise for producing subjectivity. To explore how design can be investigated empirically, I focus on how students signify textual conventions from popular media products. My argument is that the conjunction of signifier-signified is created in order to establish subjectivity as a particular kind of fan. The texts are not simple reflections of 'preferences'; whereas in Chapter 5, I argued that students' games were not a 'reflection' of pre-determined sexual identity, here my point is that

students' texts are not expressive of pre-made valuations of commercial products. Instead, students' understanding of and beliefs about such products are constituted within, and as part of the production of social relations.

First I will briefly describe the setting in which the games discussed below were made. The after-school club at the London school ran for 14 weeks in the first year of the Making Games project and five weeks in the second year, and involved the same students each year, although numbers dropped to seven regulars by the second year. The description 'after-school' is somewhat of a misnomer. In the first year, the club also ran at lunchtimes, but was focused on computer game play. In the second year, the club ran over five weeks, but in two of the weeks, the club took place over a whole school day. This was to secure additional time for students to work with the software. The data analysed below were therefore generated over four individual sessions: two one-hour after-school sessions, and two whole-day sessions (9 a.m. to 3.15 p.m.). The students knew each other from the previous year's activities, and by virtue of being in the same year group (Year 9, 13-14 year-olds), although they were in different classes.

I ran the club with another researcher, and took an approach which was similar to that adopted in the Cambridge after-school club. I introduced the software in terms of its technical features and asked students to briefly plan their game on paper. Most of the time was spent working on computers, and I moved round the group talking to students individually.

Section 2: *Sailor Moon* as game: the re-design of anime seriality

In this section, I discuss a game made by two students, Michelle and Elena, which is based on the television series, *Sailor Moon*. *Sailor Moon* is a Shoujo anime series, developed in Japan but distributed to US and European markets from the mid 1990s (Gregson 2005). Shoujo anime as a genre is targeted at a largely female audience, combining valorous heroines and romance. *Sailor Moon* is a monster-fighting action

story with a large fan base located across the world, and which is visible on the internet on dedicated web sites. Michelle and Helen display extensive and specialist knowledge of the series. This differentiates them from non-fans, and from students without this shared experience of the series, whilst also aligning them with a large online fan base. Their game is also structured to represent the idea of seriality and the particular pleasures of serial-based stories.

Signifying seriality

Michelle and Helen dedicated much of their time in the club searching official and fan-maintained web sites associated with *Sailor Moon*, in order to download source material for inclusion in their game. Week by week, their game developed through the addition of locations to display such material. This was selected to signify significant moments in the series, particularly events or processes which occurred frequently, and which therefore supported characterisation rather than primarily the syntagmatic development of plot. Figure 6.1, for example, is an image in Michelle and Helen's game which signifies the transformation of Serena (an ordinary 14 year-old girl) into Sailor Moon (a super hero with magical powers):

Figure 6.1: the moment of Serena's transformation in Michelle and Helen's game

The image is synchronised to appear with the theme music of the transformation process, the combination of which identifies when Serena becomes Sailor Moon in the space of the game, and so transforms the synchronous image into a diachronic process. The game is structured to present significant events in a chronological order, according to the pattern in which they appear in season 1 of the series as well as in individual episodes. The game starts with Sailor Moon's cat issuing instructions on the mission to be accomplished, a common starting place for episodes[3]. It ends when the Imperial Moon Crystal is placed in the player's inventory – this event is the culmination of season 1. The game is loosely based on a plotline developed across one season, but it recreates those moments which occur repeatedly, and which characterise the series.

The game consists of a set of numbered corridors, in which seven pirate's chests are located, each of which containing a crystal. Half of the chests have 'Negaverse'

[3] This statement is based on summaries of episodes which I found on the internet

agents placed in front of them – Sailor Moon's arch enemies, and which are represented in the game as shown in Figure 6.2:

Figure 6.2: pirate's chest containing a crystal, situated in between objects identified as the Negaverse in Michelle and Helen's game

Numbers placed in front of corridor entrances indicate that these are designed to be explored in a set order:

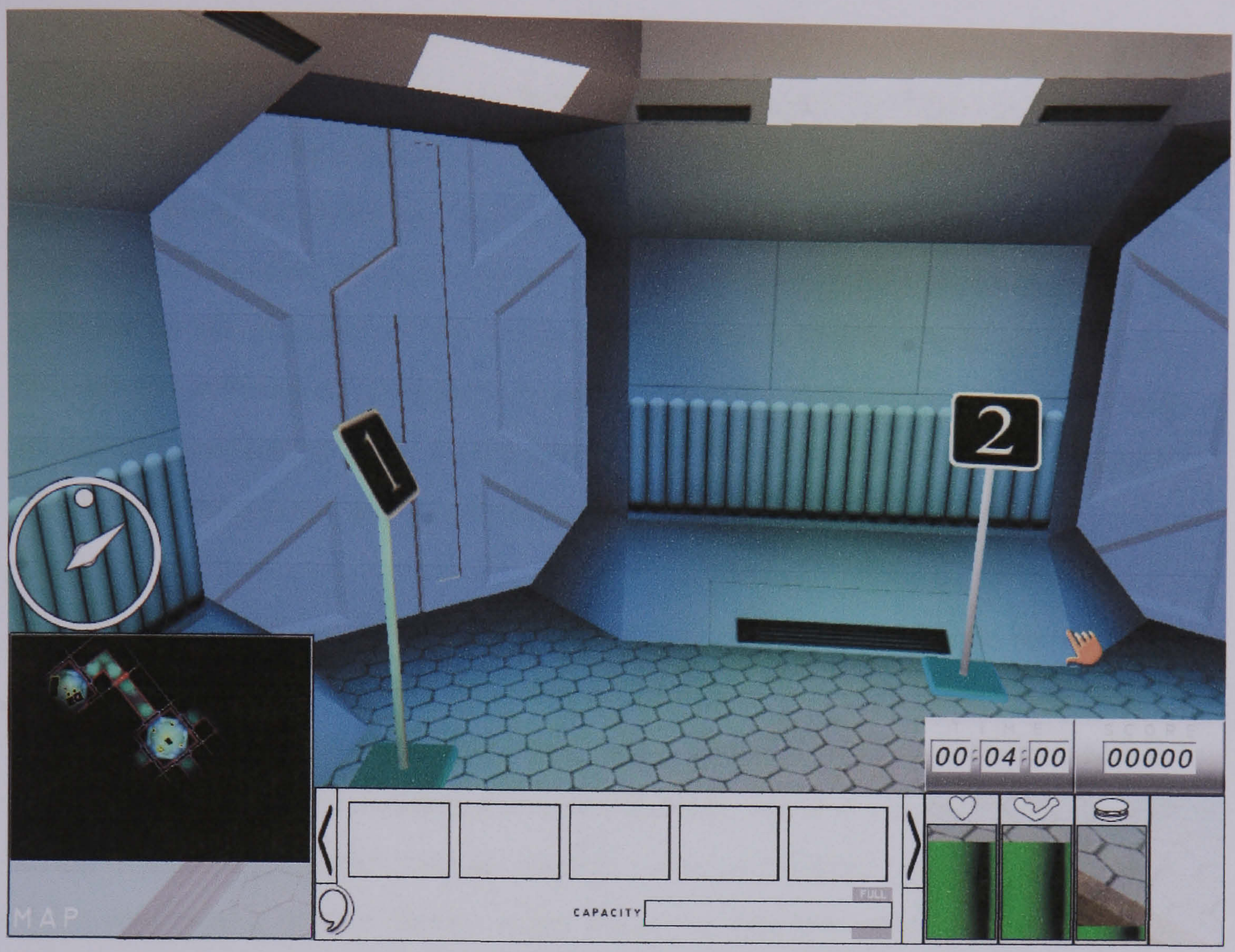


Figure 6.3: the starting point of the game – playing the game involves going down each corridor and returning to this central space

In discussing the construction of the fan object in online forums, Whiteman (2007) argues that fans of TV series emphasise the repetition of the familiar and the importance of textual continuity brought about by the repetition of conventions, including characters, events, settings and so on. According to Whiteman, who draws here on work on TV serials by Tulloch and Alvarado (1983), it is on the basis of the repetition of certain conventions that plausibility and coherence are identified (by fans) in textual material. The material sourced from the internet identifies the game as based on *Sailor Moon*. The visual repetition of items – pirate's chests and 'Negaverse' - together with the fixing of a sequential order functions, I think, as a signifier of the seriality of *Sailor Moon*. These signifiers are spatially distributed across a set of differently numbered corridors consisting of highly similar objects and spatial relationships between such objects. The corridors can therefore be

understood as episodes in a series, with the numbering system identifying the order in which such episodes are to be experienced. Each episode offers an equivalent challenge; finding the crystal in the pirate's chest. There is little variation on the challenge posed or increases in difficulty, as games tend to offer and as was demonstrated in other students' games. The spatial composition seems therefore to be based on the structure of TV series, which enable disparate incidents to cohere through the reiteration of events, characters, and aural landscape. It is both this spatial composition, as well as the insertion of 'official' images from the series, which authenticates the game as based on *Sailor Moon*.

Gregson (2005) argues that fan web sites dedicated to Shoujo anime series often make reference to more than one series. Similarly, new Shoujo anime products are often targeted at the audiences of existing anime series. Michelle and Helen position their work not only with reference to a specific title, but also a certain form, the TV series. It seems plausible that the specific form of seriality which Michelle and Helen reference is that of Shoujo anime series. In this, they display affinity with a type of genre classification derived from TV-based marketing and so position themselves as a target audience.

Design and subjectivity in Michelle and Helen's game

Michelle and Helen's game produces meaning in reference to source material which is signified as primary or authentic. They do not set out to modify the *Sailor Moon* franchise, or develop the storyline, but re-stage or revisit it. This suggests a desire to relive a fixed semiotic universe; unlike the other students in the group, Michelle and Helen do not seek to produce variations on a genre but to celebrate a past experience. Whiteman (2007) refers to this as the mode of nostalgia, which characterises the stance fans take in relation to an idealised original object of fandom. *Sailor Moon* as a TV series had ceased to be shown by the time Michelle and Helen started their game. Their efforts to reconstitute the series suggest a desire to maintain the significance of the series in their own relationship.

In re-creating significant events in the series and positioning themselves as fans of its marketing category, they emphasise the pleasures of consumption and so identify themselves with the social interests which such an activity enacts. The insertion of original semiotic entities (the images and theme tune from the series) could be described, using Whiteman's (2007) terminology, as a 'suturing' move. This is a strategic action that draws together an ideal text and fans' own texts. This action positions the students in relation to the object of fandom and also in relation to its social constituencies, aligning activities performed in an after-school club with those of an online fan base. Schott (2003) and Newman (2004) argue that in the case of computer games based on media products developed for other platforms, the evaluation of authenticity by fans is tied to the evaluation of the game's aesthetic design – a video game based on a film, for example, is judged according to how much it is said to look or sound like the film. The use of source material therefore authenticates the game as an off-shoot of the TV series, and positions its authors as legitimate fans according to criteria set within established fan 'communities'.

Michelle and Helen address an ideal audience of people who can identify the meaning of images, sounds and specialist terminology. This serves a unifying strategy between the two authors, displaying their collective knowledge and elaborating on their shared experience. It also serves to exclude those who do not have such knowledge, and perhaps more particularly those that do not have shared experience of it. In establishing a social affiliation with a social constituency which is visible primarily outside the school, Michelle and Helen also position themselves against other students. This is achieved in two ways. Firstly, the display to the rest of the group of shared knowledge signifies their friendship, and closeness at the exclusion of others. Secondly, the use of music brings the space of play into the classroom – in the making and testing of the game, the music was played repeatedly. Video evidence of the after-school club indicates that music from the series was a continuous sound-track for the club itself – in other words, the *Sailor Moon* theme tunes were a musical accompaniment to the social space of the club.

Michelle and Helen incorporated a number of phrases and gestures into the game, which were to be performed in front of the computer. Clicking on a tiara in the game causes the following image to flash up:

Figure 6.4: image associated with tiara in Michelle and Helen's game

In playing their own game, both students used the phrase repeatedly (although it clearly had no effect within the screen area). In the TV series, Sailor Moon throws her tiara to defeat enemies. This gesture was replicated by Michelle and Helen in front of the computer; the phrase 'Moon Tiara Magic' was accompanied by a swinging of the arm. When others played their game, Michelle and Helen acted out the phrases and gestures, unlike their players (who perhaps were not willing to suspend disbelief in this way). In carrying out this dramatic performance, the students indicate that the game is not restricted to the screen, and therefore technically playable by anyone, but includes physical play acting which only they carry out. Physical play thus signifies the social bonds between the two authors, and

differentiates their relationship from the ones entertained with other students. What made this game playful is not only its rule system therefore, but also the mimetic physical performance it sustained as well as the imposition of music, which stood as a signifier of their social relation, on the other students.

Michelle and Helen's game produces meaning on the basis of conventions associated with different genres, including fan fiction, fan web sites, drama and computer games. The concept of design means that attention is given to the motivated process of integration and thus transformation of conventions, rather than to the instantiation of conventions from one genre or symbolic system. This suggests how design is consequent upon a notion of performativity and semiotic resource. Signifiers of seriality are designed with game-authoring software in order to position the students as fans of a distinct TV-based genre (Shoujo anime series) and within this, of a particular programme.

Section 3: Turning Aladdin into a horror story: creating social bonds through visuality

The games analysed in this section and the following two sections were made by three friends who always came to the club together and socialised mainly with each other. In the first session of the club, they produced games which looked relatively similar, and made allusions to the *Star Wars* films. In the second session, two of these students made significant changes to this work or started from scratch. The third student continued with her existing work and made a game based on *Star Wars* (see section 5). The students seem to have divided media products between each other, to ensure each was associated with their own. This suggests that students associated themselves with unique products in the club, to avoid competition, but also secure some autonomy. It also indicates that media products were used to position students in relation to each other, and that reference to such products cannot simply be interpreted, therefore, as a pre-determined expression of preference.

Combining sound and image to establish a horror visuality

One of three above mentioned friends, Moire, started her game from scratch in the second session of the club. She inverted two aspects of the *Star Wars* plotline. First, the gender of the person to be rescued; instead of rescuing a princess, the aim of the game is described as rescuing a prince. Instead of a futuristic setting, Moire chose locations from the Egyptian theme, which suggest an ancient time period. In the game, the prince has been kidnapped by an evil advisor of his father, the kind of internal 'government conspiracy' which also characterises *Star Wars*. In the second session, Moire indicated that her game was like the story of Aladdin. I cannot tell from the available evidence whether this comparison determined this transformation of the *Star Wars* plotline, or was made subsequently and reflexively. However, the transformation meant that her game was based on a different product to that of another student, Nadine, who developed the *Star Wars* theme (see Section 5).

Moire's game opens with a notice indicating that the king's son has been kidnapped and the aim of the game is to find him. Shortly after, Figure 6.5 (below) flashes up when the avatar moves through a trigger zone at the end of a long corridor:

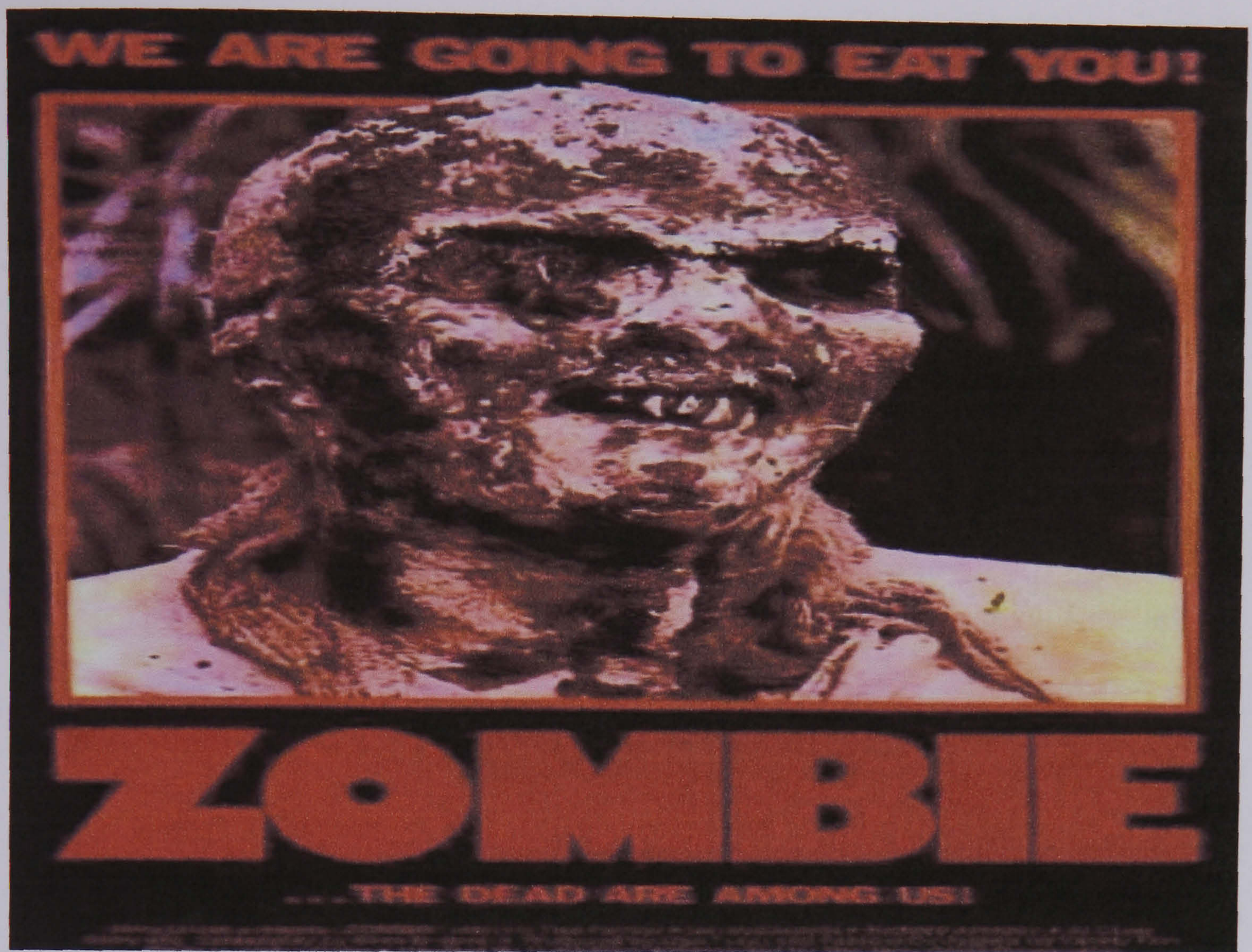


Figure 6.5: image in Moire's game

The image, sourced from the internet, is accompanied by a long, low moan which states: "I'm going to eat your brains". This was recorded and edited by Moire using music editing software to slow the delivery and lower the intonation. Immediately after the image of the zombie, the avatar enters the room below:

Figure 6.6: room in Moire's game, at the end of the corridor which contains the trigger zone associated with the zombie image

The room features four barriers (two are not shown in the image above), two of which can be seen through. There is also a large eyeball on the floor, which when placed in the inventory, causes an audio file to play, which states "I can see you", again in an edited, sinister version of Moire's voice.

In discussing the markers of genre in two videogames, Carr (2003) identifies a number of traits which characterise survival horror games. These games often feature an ordinary person plunged into a dangerous situation, fending off supernatural, grotesque monsters. Suspense is maintained through a particular combination of sound and image. The image shows the intrusion of the Monster into normality. Sound establishes suspense by highlighting aural traces of danger, such as "footsteps, wing beats, bad plumbing" (Carr 2003). Sound without image, therefore,

suggests a looming but spatially indeterminate threat, which is more frightening for being invisible.

Moire's game can be understood in reference to some of these conventions. By combining a scenario based on Aladdin, and image and sound resonant of horror games and films, she positions one in contrast with the other, framing Aladdin as the 'normal' (because) familiar world into which the inexplicable and grotesque intrude. Image and sound are related to each other in a way which echoes Carr's comments above. The zombie image is framed and surrounded by writing; this suggests that it is not the zombie which is co-present with the avatar, but its image - the image is rather like a 'wanted' poster in cowboy films. The audio file however does indicate presence: it is a direct address. Sound and image are therefore dislocated from each other – sound indicating presence, whilst image signifies absence. As a consequence, the moan is made into a spatially indeterminate threat. A similar dislocation is achieved through the use of the eye. As a symbol of dismemberment, this isolated body part indicates the absence of a real, live body. However, the collocation of image and sound makes the eye alive and seeing. The audio message suggests presence (someone can see you) whilst the image indicates bodily absence. Suspense is created by the suggestiveness of, but mysterious relationship between, sounds and images.

A third signifier of the horror genre is suggested by the use of barriers. These create a layered space, which is gradually revealed – spaces become accessible and findings are gradually made. The barriers are opened by clicking on a number of objects. Most of these are spatially separated from the barriers they open – in other words, the link between cause and effect is obscured, since it is not possible to see both the barrier and its 'key'. Movement within the space of the game thus becomes a search for the meaning of actions – for the effect one might have had on another part of the space. This creates suspense, by setting up a pattern in which actions (such as clicking on entities) have consequences, but where such consequences are deferred for an indeterminate time in space. The deferral of meaning in space repeats

the disjuncture between sound and image discussed above, although here the disjuncture is between image and image - the image of the 'key' and that of the barrier which it opens.

Design and subjectivity in Moire's game

In discussing children's experience of horror films, Buckingham (1996) argues that the violation of social, physical or sexual taboos lends the genre an adult status. Being able to watch horror is often proof of one's adult status. Survival horror games usually have an adult rating. The combination of Aladdin and zombies here makes a claim to adulthood based on the disavowal of childish tastes. It demonstrates knowledge of a genre which is a taboo for someone of Moire's age, and illicit within the physical space of a classroom.

Unlike Michelle and Helen, Moire does not 'suture' her work to a product outside of school, but instead positions herself as an 'anti-fan' with respect to children's stories; I borrow here from Gray (2003: 70), who describes the antifan as "those who strongly dislike a given text or genre, considering it inane, stupid, morally bankrupt and/or aesthetic drivel". I am not suggesting here that Moire is primarily concerned with making a judgment about Aladdin as a specific story, but her reference to it realizes a particular strategy, which establishes a certain social distance from children's stories. The story of Aladdin is humorously undermined by the sudden appearance of creatures from another genre. This makes a double claim to maturity; one in reference to an adult genre, and another in reference to the process of originating content, rather than sourcing images or sounds/music with a clear source and therefore meaning in an existing media product.

Video evidence of the after-school club indicates that the generic features of her game allowed Moire to establish differential social relations. The significance of the references to the horror genre is not fixed in the game itself, but was shaped by the commentary which Moire provided to others who played her game. The nature of

the disjuncture between sound and image in the case of the zombie image flashing up, for example, was shaped by whether Moire warned the player of the impending event, explained the meaning of the event, or did not pass comment on the event. Similarly, the visual separation of cause and effect was enhanced in the space of the club by explaining their association, giving different kinds of clues about their association, or not commenting on their association.

This meant that the extent to which horror genre conventions were realised in play were a function of Moire's social relationship with the player, or rather a way of producing such a relationship. The lack of semiotic determinacy, to paraphrase Carr, which characterise the horror genre leaves open the possibility of providing additional semiotic resources outside the space of the game, in the physical space of play. Visual design was therefore motivated in part by the possibility of shaping social relations in the moment of its realisation.

Buckingham (1996) argues that watching horror is a social activity; horror films are usually watched with friends or family, and pleasure is derived from watching others being scared. Group viewing can provide opportunities for children to 'model' appropriate reactions and emotional displays. In Buckingham's study, this took the form of peers offering instructions on coping strategies, such as giving reminders that the film is not real. Moire's commentaries during play perform a similar function. They make the process of playing into a social activity, with responses such as being scared or cynically satirical played out in front of the screen. The emotion displayed is in part a function of the information which Moire provided – forewarning of the zombie's appearance could generate laughter rather than surprise; giving information on the effect of clicking on an object could generate amazement rather than frustration. Moire's commentaries therefore shaped the display of emotions during play. The information she provided could thus be said to be a function of the social relation she sought to establish via a display of emotion.

In designing a horror visuality with the game-authoring software, therefore, Moire created a text whose meaning could be manipulated by its author at the moment of its realisation by a player. The game is assembled according to the specific circumstances of the after-school club, in which game-makers played their game with others. The recreation of horror conventions can thus be understood in terms of such material conditions, which, as I argued in Chapter 4, are very different from those underpinning the conventions of commercial games. Moire's game is intelligible because it re-works familiar formulae of the horror genre, but its specificity as a text is a function of its author creating social relations and a subject position as a mature media producer.

Section 4: Harry Potter as avatar: evoking the position of the school-child hero

In this section, I analyse the game produced by Jennifer, who started making a spaceship adventure but in the second session, imported an image which she said was like Lord Voldemort, an evil adversary in the *Harry Potter* stories. In the game, the evil adversary is named Lord Zudock, a name with equally sinister overtones due to the consonants and closed vowels. Jennifer, Moire and Nadine brought their *Harry Potter* books to the after-school club and read them together whilst waiting for the activities to start. In interviews in the previous year's field work activities, they stated that they acted out scenes from the book during break times. Jennifer played the role of Harry Potter. She was often referred to as Harry in the club. In assembling her game, Jennifer organises her game primarily in order to attribute character traits to the avatar. Such traits are reminiscent of the Harry Potter character. However, Jennifer does not present herself as a consumer of the *Harry Potter* franchise, nor does she display specialist knowledge of the *Harry Potter* stories. Instead she positions herself as someone interested in the development of moral character.

The attribution of character traits to the avatar

The spatial layout of Jennifer's game (see Figure 6.7) implies a sequentially organised, spatially (and thus temporally) extensive storyline. The starting point is in the top left corner. Spatial progress is achieved by moving down one long corridor, with branches leading off, at regular intervals, into rooms. Each room contains either a challenge or resources to assist progress. The final and largest room contains a challenge, which when overcome, ends the story. The circularity and spatial organisation of the layout is suggestive of a narrative cycle: a starting point, followed by a series of episodes along a linear journey, culminating in a big battle against evil, and, finally, resolution and the return to normality.

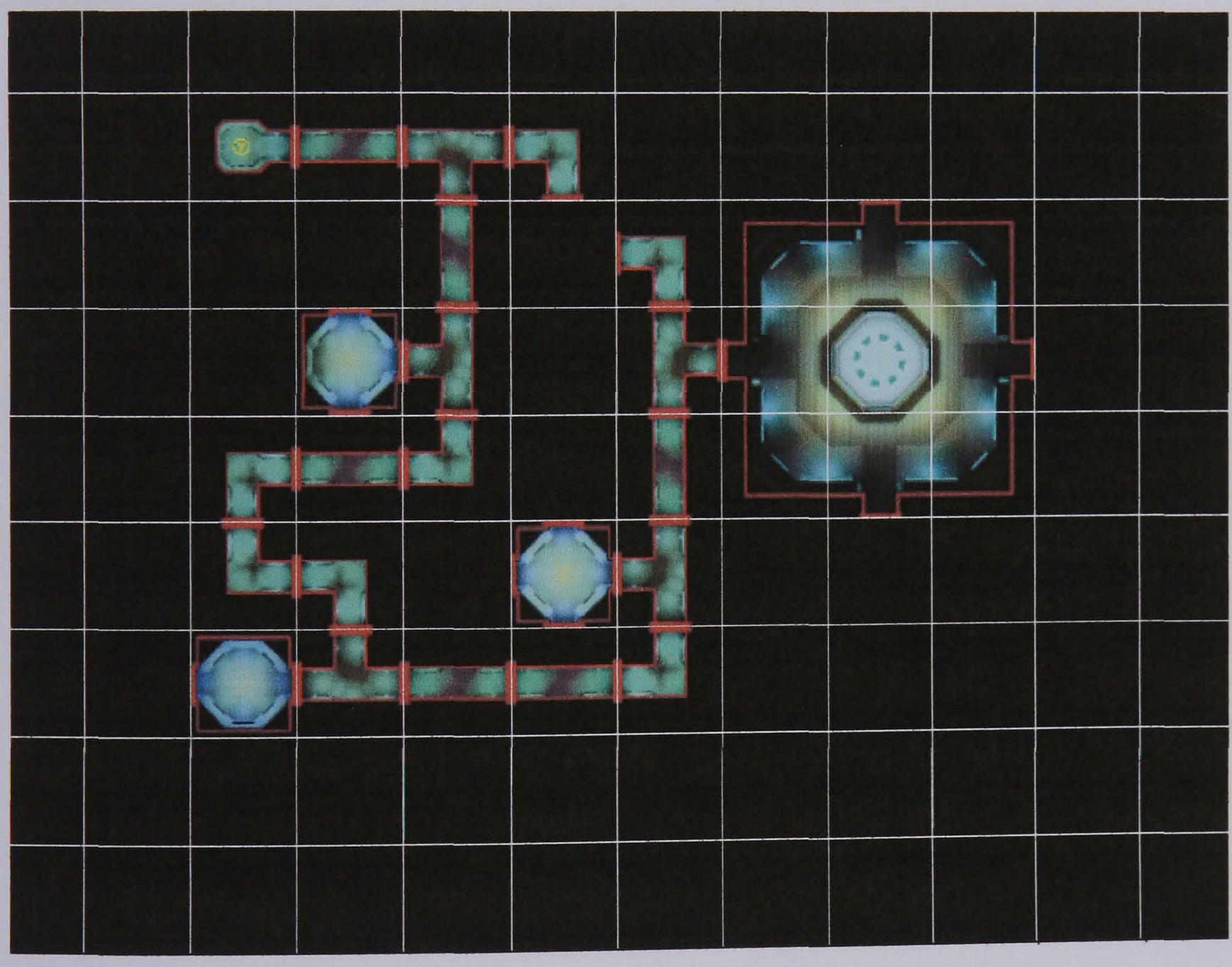


Figure 6.7: map view of Jennifer's game

The opening image of the game describes the quest:

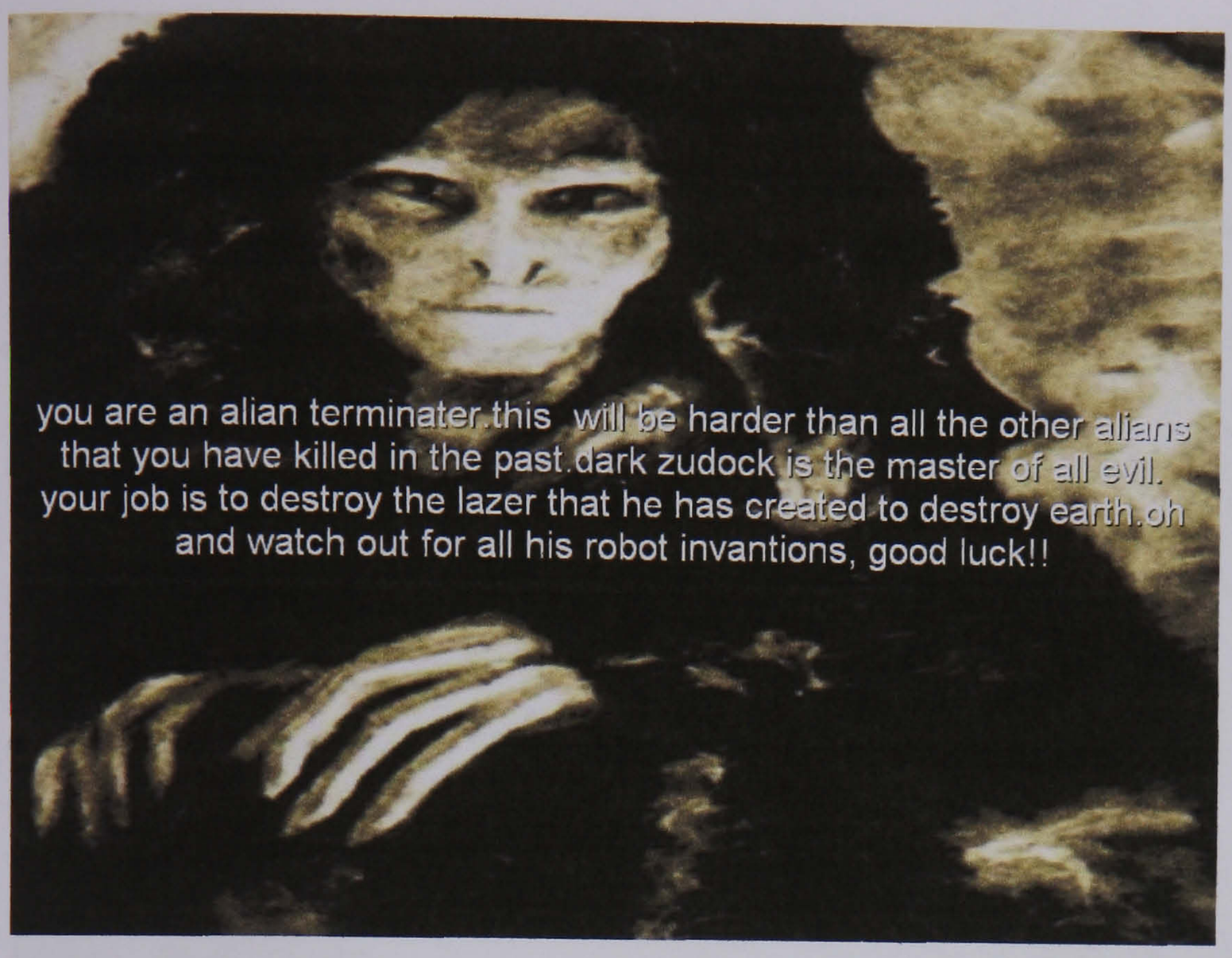


Figure 6.8: opening image in Jennifer's game

The quest is framed as a test of character ("this will be harder than all the other aliens that you have killed"), with morally unambiguous consequences – the task of defeating 'the master of all evil' positions the avatar as the anti-thesis of evil.

The first challenge involves pinning a robot against the ceiling by clicking on a platform that then rises, a feat demonstrating cunning and also more-than-human power or strength. The second challenge involves hitting a robot with a hammer. This causes the image of a large explosion, sourced from the internet, to flash up. Cause (hammer) and consequence (explosion) do not seem proportionate on an ordinary human scale, suggesting again more than human, magical powers; it should be noted that Jennifer could for example have used the image of a bomb or sticks of dynamite rather than a hammer. The design of the challenges, notably the association of dramatic consequences with minimum input, attributes traits to the avatar, characterising it as highly powerful with relatively little effort.

The resources available to the avatar contrast with these superhuman feats. Near the start of the game, the hammer is located on the floor:

Figure 6.9: second location in Jennifer's game, with hammer on the floor

The hammer lies in the player's path. It appears to be a visual signifier of destiny. There is no attempt to hide or locate it as an incidental item on a table top. Other entities are placed according to the same principle; they are placed in the path of play rather than hidden away, designed to be searched for and found. Again, this attributes certain traits to the avatar; its arrival is shown to be anticipated, pre-told, suggesting power and moral significance. The hammer is also an ordinary human tool – other weapons were available in the software, notably swords. Jennifer here seems to draw on certain conventions of epic narratives: an ordinary person, identified as such by his of her domestic resources or activities, destined to overcome evil and save the world with the aid of magical powers. This narrative structure has often been associated with computer games. Murray (1998) makes a comparison between game characters and the Homeric poet's formulaic construction of Achilles, a hero with superhuman power but all-too-human emotions and character flaws. Burn and Schott (2004) argue that games can be understood as the development of an oral tradition of story-telling, in that conflict and action are the externalisation of character attributes.

Two events seem to characterise the avatar as a child. The first is the shift in tone in the last sentence of the instructions issued at the start of the game (see Figure 6.8): "oh, and watch out for all his evil inventions. Good luck!". The apparent forgetfulness of the quest giver – oh, and...- undermines the ponderousness of the previous sentences. The address emphasises the homeliness of the hero, but here humorously. Shortly after, a message appears if the player goes down a dead end:

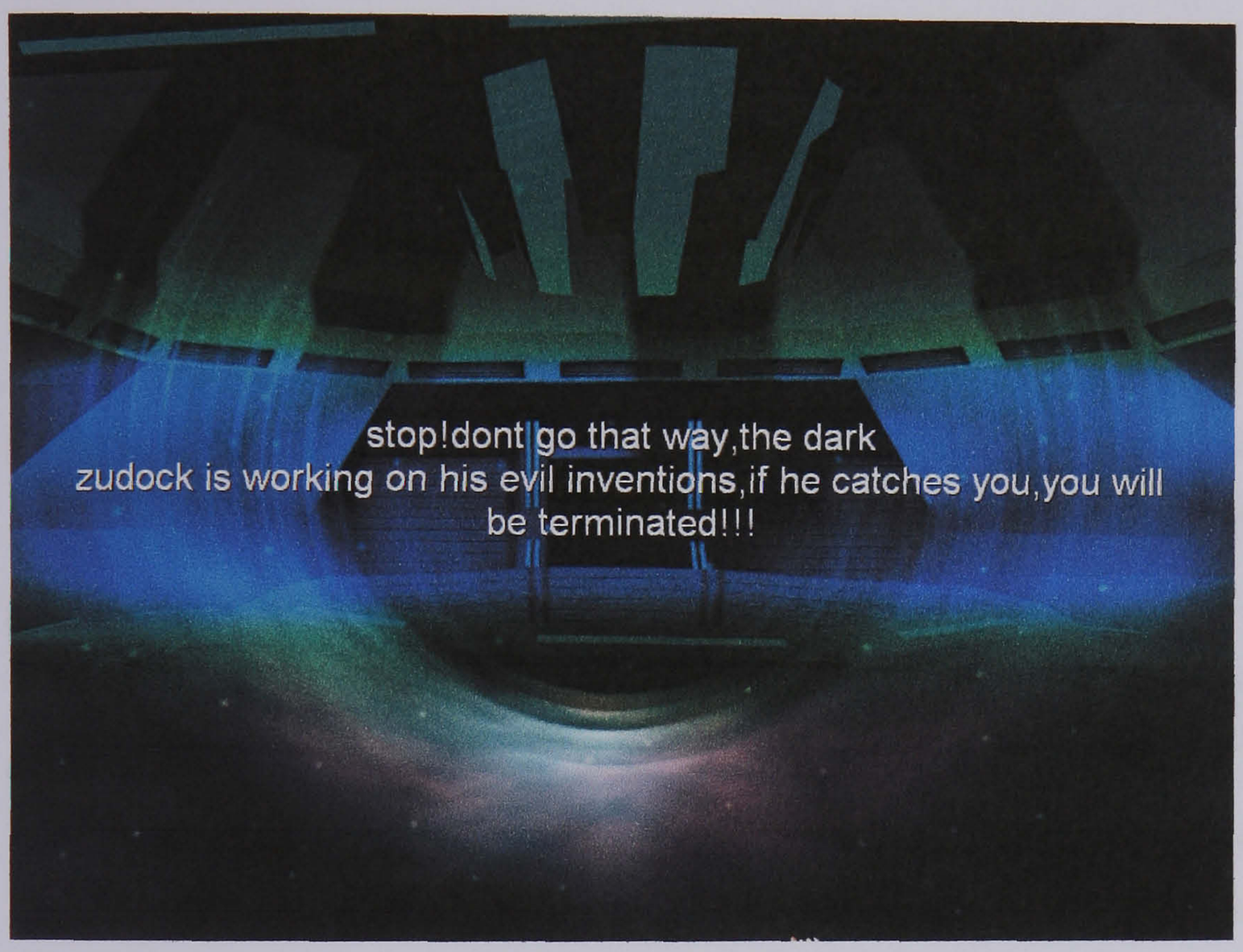


Figure 6.10: message associated with the dead end near the start of the game

The formula 'if he catches you', and particularly the use of the word 'catch', suggests a teacher-pupil or parent-pupil relationship; the danger is being caught, doing something one should not be doing. Jennifer here evokes a child-like hero, pre-destined to save the world through strength of character, moral courage, magic and humour (rather than, for example, military power).

Design and subjectivity in Jennifer's game

Jennifer does not draw on an existing and familiar story, nor does she focus on the re-creation of established visual genre conventions. Semiotic entities are arranged in

order to attribute character traits to the avatar, with such traits associated with genres of narrative, notably quest-based, epic stories set in Manichean moral universes. Although Jennifer compared her game, in early planning work, to themes and characters in the *Harry Potter* stories, she distances herself from *Harry Potter* as a consumer product; no explicit reference is made to the *Harry Potter* franchise, which means that there is no explicit 'suturing' move to link Jennifer's game to an established popular text.

Jennifer identifies herself as a fan by recreating a moral universe and focusing on the development of moral character. Her choice of images (for example Figure 6.8) sourced from the internet is strategic: they are not film stills produced for, and consumed by, consumers of the franchise, but more generic, semiotically open images. This can be interpreted as Jennifer positioning herself as a fan of *Harry Potter* as ethical code (concerned with the battle over evil on the basis of child-like moral innocence), rather than *Harry Potter* as commercial franchise – a pointed contrast to Michelle and Helen's positioning in relation to *Sailor Moon*. It also contrasts with Moire's claim to adulthood; the evocation of a child-hero valorises childhood as a morally superior state, untainted by the ethical compromises and breakdown in meaning signified, in the horror genre, by abject bodies and liminality (Kristeva 1984). Where Moire sought to obfuscate the relationship between cause and effect, Jennifer is at pains to make it unambiguous, in order to make the avatar ethically responsible for, rather than emotional about, its own actions.

In playing her game, Jennifer performs an activity for which she was already known: playing the role of Harry Potter. The game frames this playful performance as re-enactment of moral values rather than subservience to consumerism. The distinction serves to differentiate Jennifer from *Harry Potter* fans who indicate their appreciation in reference to published images or the particulars of the storyline. In focusing on character attributes and moral traits, Jennifer in effect positions such concerns as superficial. Fandom based on mere consumption is 'othered', a strategy

which performatively produces another kind of fandom, morally and culturally superior precisely because concerned with moral worth.

Jennifer designs, in the semiotic sense, the signs in her game to distinguish herself from other students in the club, on the basis of the relationship established with media products. It identifies her as someone interested in moral character. By signifying her game with respect to certain characteristics of the epic genre, and establishing certain links between her game and *Harry Potter* (in the choice of images and in early planning work), Jennifer suggests that her interest in *Harry Potter* is a function of its epic qualities.

Section 5: Star Wars as a framing device: giving abstract problems a popular meaning

The last game to be discussed in this chapter is Nadine's, which I referred to briefly in Chapter 3. I argue that the game is framed by references to the *Star Wars* franchise, whilst the main body of the game consists of puzzles which demonstrate Nadine's capacity for and interest in abstraction, or the solving of abstract problems. Material sourced from official *Star Wars* web sites serves to locate such a capacity in a popular domain, and legitimates it in reference to such a domain.

The social significance of defining games in terms of abstract systems

Nadine spent the first two sessions of the after-school club trying out different combinations of triggers in the software's rule system. Events in these early versions of her game demonstrate different rule structures, for example, different ways of opening doors or causing entities to move in response to player input. By the end of the after-school club, the game consisted of a series of rooms, in which four abstract numbers were located.

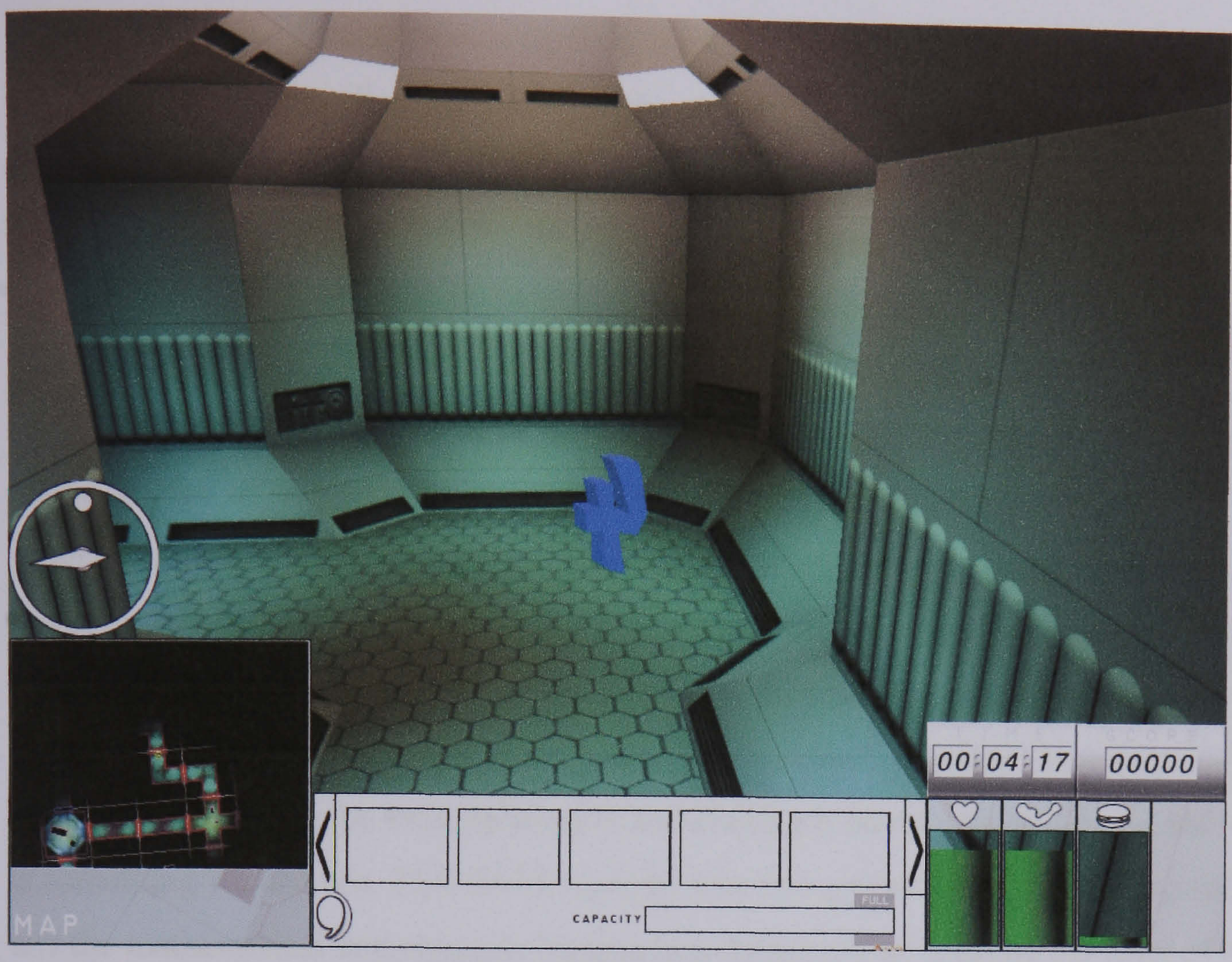


Figure 6.11: the number 4, in Nadine's game

The main challenge of the game is to find and collect all four numbers and place them in one location.

Nadine dedicated a significant amount of time to devising a way of making one effect (a door opening) follow from four causes (the four abstract numbers located in one space). The rule structure can be described as follows: If v AND w AND x AND y THEN z. To achieve the desired effect, the rule structure had to exclude the possibility of the door opening if only three (or any other number apart from four) causes were provided. Such a complex, nested rule structure had not been achieved before. Once the problem had been solved, Nadine extended it by adding additional effects to the four causes (the door opening as well as the sound of a door opening being played).

The items to be collected have an abstract modality – they are material instantiations of abstract numbers. The difficulty of the game's main challenge lies in its rule structure rather than in finding the four numbers; as can be seen from Figure 6.11, these were not hidden but left on full view. Nadine seems concerned primarily with articulating a problem which is difficult from a programming perspective, but precisely not from a playing perspective – that is, the problem highlights her capacity for devising complex rule structures rather than difficult playing conditions. Game design is consequently framed as an activity concerned primarily with programming and rule structures rather than stories and emotions. The abstract modality of the four numbers, and the complex rule structure by which they are associated, can be interpreted as a sign of the process of programming itself, as intellectual and mathematical endeavour. The abstract numbers in effect make programming visible, by materialising it, and placing it on the plane of the visual – it is something we can see. This divides games into two planes: the visible and graphic, and the mathematical and abstract. Nadine here brings the abstract up the level of the visible, showing what it is that games are 'really', materially, made of.

The authoring software has a structure which also divides games into two planes, or modes; in 'design' mode (design here refers to game design), rules are written; in 'play' mode, the rules are hidden from view. In choosing four abstract numbers as entities for collection, Nadine highlights, in 'play' mode, the number of rules she has inter-related in 'design' mode, thus bringing to the surface the rule structure which underpins the game.

This division of games into two planes also has some basis in the game studies literature. Linderoth (2002) divides the constituent elements of games into two categories: *system* and *guise*, the former being the rule-based system of the game and the latter the visible game world, the narrative and characters overlaid on the rule system. The significance of this distinction was also the object of debate in the first issue of *Game Studies,* which featured a debate between ludologists and narratologists (Juul 2001; Eskelinen 2001; Ryan 2001; Bringsjord 2001).

Ludologists (e.g. Juul 2001; but also Aarseth 1997) focused on games as abstract systems and argued for defining games in this way in order to secure game studies as a distinct disciplinary area. Narratologists (Ryan 2001; but also Murray 1997) defined games in terms of narrative and representation, making the study of games into an extension of film or literature studies. The identification of games in terms of abstract systems can therefore be interpreted as a strategic move to isolate games from other media products, and focus on what distinguishes them from TV and film, rather than on what they have in common.

In Nadine's game, 'narrative' and systemic perspectives are counterposed against one another, with a systemic conception of games given greater value. The counter-distinction serves to isolate the specificity of games as a platform, distinguishing people who play games as a specific genre, from people who engage with a variety of media genres. From this perspective, gaming is framed as an intellectual pursuit, with concerns about narrative positioned as relatively superficial. Nadine's design could thus be interpreted as a move to affiliate herself socially with 'gamers' – fans of a genre, who distance themselves from fans of a cross-platform media product (such as *Harry Potter*) or fans of other media platforms (such as TV or film). This distinguishes her from other students in the group.

As noted in Chapter 3, however, Nadine's game is framed at both ends of her game by references to *Star Wars*. The first is the opening image, which describes the aim of the game:

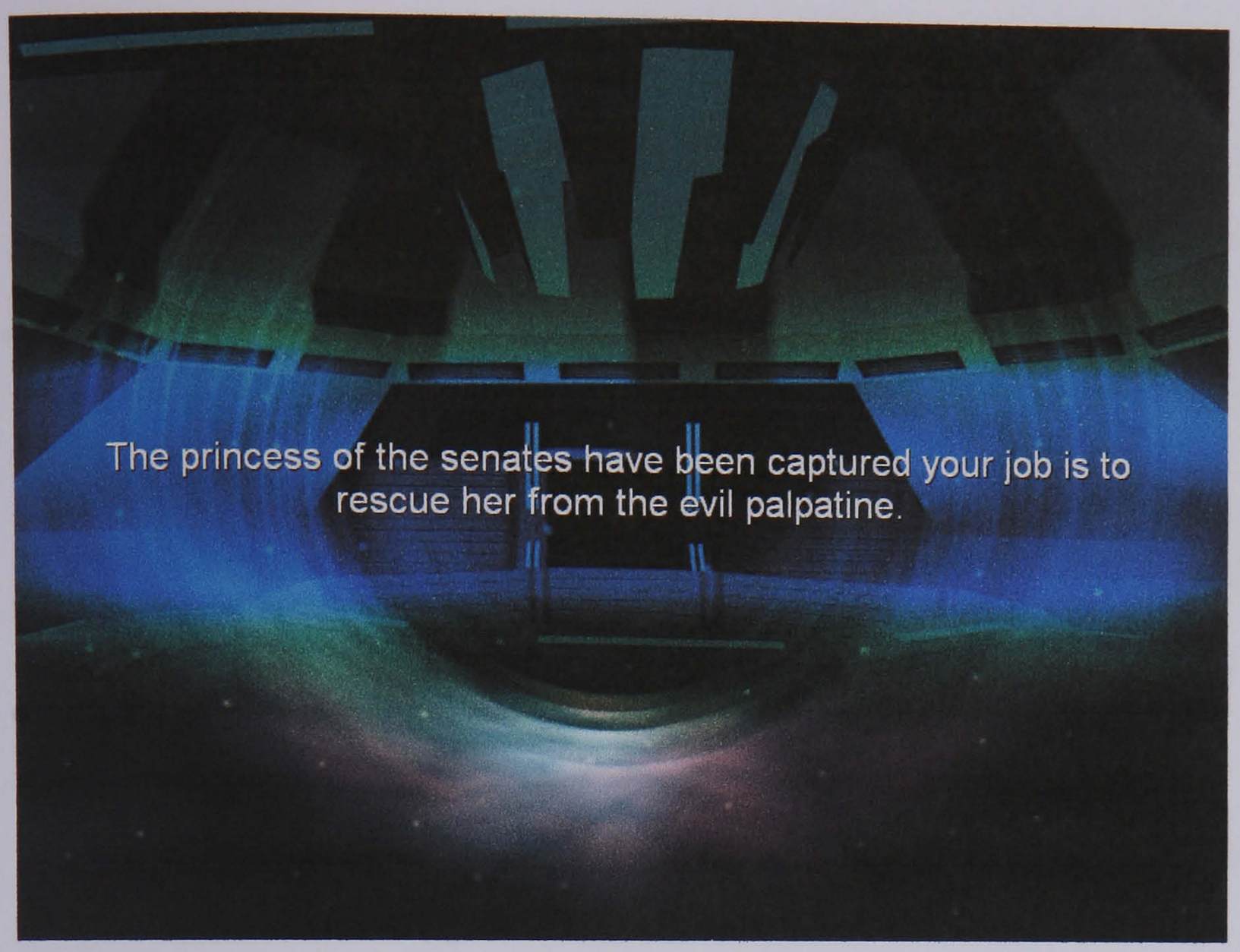


Figure 6.12: the opening image in Nadine's game

The princess of the senates and Palpatine are leading characters in the second and third films in the *Star Wars* saga. The instructions indicate that the game's avatar is also a character in the film.

The second reference is at the end of the game. Placing numbers 1 to 4 in a particular location opens the door to a room in which three further doors can be opened. The choice of doorway entered determines whether the game is lost or won, states which are indicated as follows:

Figures 6.13 and 6.14: images which appear depending on which doorway is entered and which indicate to the player whether the game is won or lost

Figure 6.13 shows Palpatine and figure 6.14 the princess of the senates – both images were sourced from official film web sites.

No further references to *Star Wars* are made, although several entities are suggestive of the presence of a princess: a tiara and a pink handbag. Both are described within the software as having belonged to the princess. These entities sustain a narrative thread through the game, tying the opening image to the final resolution:

Figure 6.15: the handbag in Nadine's game, with its associated description

However, this thread remains relatively marginal in the main part of the game, referenced only if entities are examined.

The *Star Wars* references locate the nested complexity of Nadine's rule structure in a popular domain. Although Nadine displays an appreciation of gaming as an abstract process of problem-solving, she legitimises this understanding of games by adapting design strategies employed by other students, sourcing material from the internet and popular media sites. In this instance then, displaying appreciation for narrative and story makes a concept of game as programmed system acceptable or intelligible. In the after-school club, it was precisely this process of referencing popular media outside the school which signified students' work as games – this is what made them playful. In Nadine's case, however, such signifiers are tacked on rather unconvincingly, which perhaps suggests a conflict of interest, between positioning oneself as a gamer and a student making games in this club. All the students except Nadine affiliated themselves with social constituencies which were

not exclusively or even primarily defined in relation to games. Nadine's game establishes a distinction between games and other media but legitimates a definition of games as systems in relation to a popular film.

Design and subjectivity in Nadine's game

Nadine's text distinguishes between two conceptions of games: game as programmed system and game as story. The first is associated with certain representations of dedicated gamers: people who play games because they value the genre more highly than other media genres. The second is associated with games as a popular media product, and particularly with audiences who play games as an extension of their engagement with other media. In devising a puzzle consisting of four abstract numbers which are materially rendered in a 3D space, Nadine combines both conceptions, by integrating signifiers of game as system into a narrative space, defined as such in reference to *Star Wars*. This integration suggests Nadine's desire to legitimise a conception of game as system in the context of the after-school club, in which most students made games based on products from other media genres.

The distinction between dedicated gamers and people who play games as part of a wider pattern of consumption was also made by students in the focus group discussion, analysed in chapter 5. Nadine's strategy here is similar to Jo's positioning of her game playing as part of a wider engagement with media, and therefore not an obsessive interest. In the focus group discussion, this positioning served to signify gender. The distinction here serves a somewhat different social purpose. However, it can be noted that in both cases, there are difficulties for girls in positioning themselves as fans of games as a specific genre.

Conclusion

In this chapter, I have described how students arranged their game in order to realise certain strategies, a process which Kress refers to as design. The concept of design has informed the thesis as a whole. I have focused on it here because my interest in this chapter is on the re-signification and transformation of specific media products. I have shown that on the basis of a general awareness of such products, their contexts of production and reception, sign-makers newly make signs out of available resources. This is a much more generative notion of text-making that could be accounted for by seeing these games either in terms of competence (with respect to some prior notion of competent game design) or critique (understood as decoding conventions and offering 'resistant' re-workings of such conventions). The focus in this chapter has not been on the extent to which students have learned the shapes of existing texts alone in order to replicate them, but on their construction of signs in context. I have also sought to clarify how the signs arise out of social conditions, and students' efforts to secure a certain social position. The concept of design enables the development of an account of semiotic change, related to social conditions, which makes the actions of the sign-maker transformative.

The notion of design is also linked to the concept of multimodality. In this chapter, I have drawn out the combination of modes and genres in students' games, to highlight how students combine writing, image, sound and gesture to produce meaning. In Michelle and Helen's game, image and sound are used to tie the game to *Sailor Moon* as franchise, with sound also transforming a synchronic image into a diachronic process. In Moire's game, image and sound are disjointed, which re-creates a convention from horror films. The relationships established between modes are decisions relating to how best to produce meaning. Butler's definition of performativity suggest how concepts of 'best' are arrived at. In this chapter, I have focused on students' positioning with respect to each other and to media products, with the latter deployed as legitimating devices to enact such positioning. This

suggests how power is exercised by students with respect to media products, but also how their text-making is a function of norms produced by such products.

In fan studies, the term 'bricolage' has been used to describe a conception of semiotic production which has some similarities with the notion of design (Jenkins 1992). This draws on the work of de Certeau (1984: 44), who argued that "every 'proper' place is altered by the mark others have left on it", by which he meant that textual objects with a high social status are transformed in their very consumption, a process he describes as 'poaching'. The games analysed in this chapter could be considered as impertinent raids on commercial products whereby students take away only those things that are useful to them. De Certeau's conception however does not account for how 'usefulness' is evaluated by poachers. The concept of design is perhaps somewhat less voluntaristic; design is strategic but not proof of free (of the social) will. However both terms provide an account of semiotic change. The 'poaching' analogy highlights that such change can be conceptualised as an ongoing struggle for possession over semiotic resources and for control over their meaning. Such a struggle, however, is not binary, but plays out between subjects who aspire to fix their subjectivity in relation to social constituencies.

CHAPTER 7

CONCLUSION

Section 1: Achievements of the research

Empirical achievements

This thesis has been concerned with identifying what young people learn when they make computer games. It has made a case for understanding games as social semiotic resources with which social relations are enacted in context. Learning has been defined as a process of meaning-making, with meaning produced on the basis of available resources and strategies to realise subjectivity. Central to this thesis is the idea that meaning-making, and thus learning, is motivated, with motive explored in terms of what it can act upon. I have drawn on two bodies of theory: one pertaining to the analysis of multimodal texts and theorisation of sign as relational, material and socially situated; the other concerned with the materialisation of subjectivity in semiosis. Used in conjunction, these theories have allowed me to treat semiotic practices as indicators of the production of subjectivity.

In analysing data, I have shown how textual production instantiates processes of social affiliation and differentiation, with students positioning themselves in relation to points of authority to legitimise the performative production of subjectivity. In terms of identifying the educational value of computer games, I have suggested the ways in which the social and semiotic resources available for making games enable students to transform social/semiotic conventions and position themselves in relation to social processes, including texts, in new ways.

The thesis has been organised to address problems in the games and learning literature. The first of these is the distinction between form and content in the policy literature. This has encouraged a reification of games and led to the view that games

are educational insofar as they are effective at delivering curriculum content or generic skills which are transferable. Although such claims are made on the basis of limited empirical evidence, the more substantive issue is that they treat games as having specific capacities which are abstracted from the context of realisation. Games are understood to have effects on people. Whereas the 'effects' literature in some research on media focuses on the deleterious consequences of watching or playing violent content, the games and learning literature has emphasised positive effects. In both cases, however, the content of new media is seen to largely bypass the interpretative – or sign-making – capacities of students. Interactivity, from such a perspective, is largely a physiological process, in which students construct texts, but not their meaning. In analysing games in this thesis, I have suggested that what counts as a game, and what counts as playable, is not a property of a given entity but the meaning which such an entity has within a set of social relations. Such relations are characterised by competing claims. This challenges the largely consensual view about what games are, how they are played, and what they mean, which emerges in Gee's work. The contexts examined in Chapter 4 gave rise to different claims about what was a valid, intelligible sign of 'gameness', with such claims made on the basis of the material, cultural resources for making meaning and the social processes which characterised those contexts.

A second problem I tackled is the methodological distinction between meaning and the resources for making meaning in the literature on 'gendered preferences' about games. I highlighted competing conceptions of 'construction' in Kafai's work; although young people are understood to construct their own learning, their gender is understood to be pre-constructed. The first conception posits the mind as actively and voluntaristically constructed, whereas the second posits the body as a largely passive surface on which social influences are inscribed; socialisation is understood to happen *to* people, whereas learning (or sign-making) is something they do for themselves, individualistically. In analysing the signification of gender in talk, drawings and game design, I suggested that gender is materialised as culturally intelligible signified with material, semiotic resources, on the basis of social norms

for what can count as male or female. Such a process is not merely 'reflective' of socialisation, but strategic and performative. This suggests that although gender is a social construction, it is not constructed by an 'I' which is determined prior to that construction, but neither is it a voluntaristic performance which is free of the social. Analysis of the dichotomies instantiated in students' texts suggests that gender is a matrix of normative, differentiating relations by which sign-makers come into being as social subjects. Becoming gendered is a strategy pursued by students precisely to make their texts, and themselves, recognisable, or meaningful. However, how gender is signified is a function of the resources available for signification. From this perspective, the political value of girls (and boys) making games should not be formulated in terms of gaining insight into girls' minds, but making possible social relations instantiated in texts which challenge the stability and naturalness of existing gendered dichotomies.

The third problem related to the lack of theoretical clarity about what is produced when people make games. I explored the concept of 'design' as an alternative framing, with respect to critique and competence, for analysing students' texts. The notion of design challenges the view that interpreting or producing a text involves reproducing conventions that are 'out there', in a canon of work, such as existing commercial games; it suggests that the way sign-makers interpret conventions involves selection and transformation. The analysis showed that it is the interaction between students in the club which established what their games, as well as the media products which they referenced, mean. I focused on their re-signification of media products, and explored how fandom of specific products emerged within context, as opposed to simply prior to it. Attention was given to the selection of criterial features of media products, and their signification on the basis of sound, image, writing and gesture. Selection and transformation of conventions on the basis of available resources are what constitutes students' design. The notion of design complements that of motive, in that texts are framed as motivated transformations, rather then demonstrations of pre-determined and usually institutionalised criteria (competence) or generic, as opposed to contextual, 'penetration' of codes and

conventions (critique). As a concept, the semiotic notion of design enables me to account for what people are doing in making games, as well as describe the social purposes they have in doing it.

Theoretical achievements

In this thesis, I have developed a theoretical framework to enable the study of meaning-making in terms of the production, or to borrow Butler's term materialisation, of subjectivity. The concept of 'motive' has been elaborated as a methodological device to align a body of work concerned with semiotic analyses with a theory of subjectivity. In Kress' work, the term interest accounts for the social purpose the sign-maker has in transforming signs. It is the basis on which Kress makes a distinction between using signs, and making signs. The concept of interest points to the social action which meaning-making entails, and serves to counter theories of meaning-making which objectify signs by defining them as the internal differences within a stable system; or which study signs in terms of their historical constitution but not the historical actions of social subjects - in Bourdieu's terms, which study structuring structures but not structuring subjects.

Butler's work can be aligned with a social semiotic theory and methodology because of common concern with the production of the symbolisable, and the unsymbolisable, as a strategy of social action. The subject, as the intelligible, acceptable member of a social collectivity, is constituted performatively, in relation to discourses; such discourses are not somehow 'out there' as determining resources, but enacted and effective in their reiteration. Where Kress emphasises the sign-maker's *selection* in producing meaning, Butler talks about the production of a defining constitutive outside; what is selected as a sign realises a social strategy by excluding other possible significations. Such exclusions and differences are not merely structural, but motivated, strategic, inherently social.

On the basis of these two theories, it is possible to examine principles of selection in sign-making and the social strategies thereby realised; and treat such principles as pertaining to the performative production of subjectivity.

The benefits of using these two theories is that they are, from my perspective in this thesis, mutually illuminating. Kress' work has proved helpful in clarifying the concept of re-signification in Butler, and how this process operates semiotically. Re-signification can be understood as process, on the basis of which political agendas can be established for what should count as desirable forms of re-signification. This avoids assigning failure to realise such political agendas as mere inaction or passivity, and conversely, success as active and agentive. Political agendas are political, not indicators by which to measure passive or agentive beings. Butler's work on the relationship between sex and gender is helpful in understanding the processes by which materiality is recruited as sign in the social. Her argument suggests that materiality is a certain effect of power, rather than something which is prior to the social. This develops the concept of 'modal affordance' in multimodality theory, defined as "what it is possible to express and represent readily, easily with a mode, given its materiality and given the cultural and social history of that mode" (Jewitt & Kress 2003: 14). The issue lies precisely in the nature of the relationship between the material and the cultural. Without denying the materiality of the world, it is possible to argue that materiality signified as prior to signification is an effect of signification. In other words, what is interesting about the notion of affordance is precisely how materiality is framed and formed as significant. This is what I sought to highlight in chapter 5, in which I explored, for example, the way in which image enabled the objectification of games and the disavowal of subjective experience. In 'showing' games, students positioned themselves as objective 'viewers', with girls assuming an academic viewpoint and boys signifying a 'realistic' perspective. The signification of gender was not produced on the basis of the materiality of the image in general but as a consequence of the strategic signification of ways of 'seeing' or 'displaying', which made the drawings intelligible in the context of production.

Methodological achievements

In order to analyse the data, I adapted methodological approaches concerned with discourse analysis and multimodal analysis. I have not drawn on Foucault's work extensively, although his conception of power and subjectivity are an important influence on Butler's theory of performativity. However, the broad framework of Foucaultian discourse analysis has enabled me to combine a social semiotic approach to discourse analysis, which has traditionally been concerned with the in-depth analysis of texts to highlight how they instantiate social relations (e.g. Hodge and Kress 1988), together with an approach which tends to focus on the historic constitution of discourses but rarely examines the details of specific texts. Indeed, social semiotics and Foucaultian-based frameworks are usually seen as different varieties of discourse analysis (e.g. Gill 2000), although there is more overlap and common interests than some methodology books might suggest.

One of the advantages of combining these approaches is that it the concept of 'discourse' can be examined concretely, in its specific manifestations, in its materialisation. Butler has influenced empirical research on gender, but her books relatively rarely analyse empirical practices – although her analysis of the film *Paris is Burning* is an example of how her theory deals with specific empirical phenomena (1993: chapter 4). When she does focus on practices such as drag, this has often been mistakenly taken as paradigmatic of her theory, rather than as an illustrative example (Butler 2004). Butler has discussed at some length the issues involved in 'applying' theory to the empirical domain (Butler *et al* 2000: chapter 1), suggesting that theory is always thereby transformed to some extent. Without denying the transformations that have been 'done' to Butler in this thesis, by for example using her concepts in discussions pertaining to other aspects of subjectivity as well as gender, the combination of her work with social semiotics-based approaches to text analysis have, I hope, suggested what performativity looks like in practice, how subjectivity is materialised in entities conceptualised as texts, how social and power relations shape what can be meant in specific instances.

Conversely, there has been some work to combine social semiotics with other theoretical frameworks to analyse social practices in the making. Jewitt (2006: 30) integrates activity theory and multimodality theory to analyse video data of children using computers; this enables her to comment on the social processes involved in constructing or engaging with interactive texts, rather than relying primarily on post hoc analysis of the texts alone. The video data I worked with in this thesis was very different to Jewitt's. However, the concept of performativity and historical analysis of textual production, as well as video footage of students' playing games, has enabled me to comment in similar ways on how texts were constructed over time in context, and the changing social purposes which students enacted in textual production.

In order to analyse students' games, I developed an approach to treat 3D, multimodal and interactive texts in a systematic way. This built on work which has developed multimodal approaches to the analysis of web sites (Burn & Parker 2003; Lemke 2002), and interactive packages such as CD-Roms (Jewitt 2006). As Lemke (2002: 300) notes, interactive texts pose particular challenges for multimodality theory: "it is not simply that we juxtapose image, text and sound; we design multiple interconnections among them, both potential and explicit." In analysing games, I focused on how they were assembled, rather than how individuals played them; this means that I took into account all the potentials created by the system of rules, rather than those that were realised in instances of play. This double perspective on interactive texts – seeing both (some of) the logical rules and their textual realisation – is relatively unusual, primarily because people undertaking semiotic analyses rarely have the technical know-how, or indeed interest, in examining the technical processes which enable textual realisation. In this study, I was fortunate to have extensive knowledge of the software. In addition, the software was developed precisely for people without technical expertise. This means that the approach I took to analysing students' games could not therefore be replicated for the analysis of, for instance, commercial games, although the categories for textual

analysis described in Chapter 3 would remain relevant. There is certainly some advantage to being able to investigate how interactive texts have been built technically, precisely in order to be able to describe more precisely the variety of 'potentials' for textual realisation. This suggests that researchers undertaking semiotic analyses of technological, interactive texts could usefully extend their knowledge to incorporate some understanding of computer programs and languages. However, this thesis has developed certain categories and concepts, from existing work on multimodal analyses, which contributes to the available resources for analysing new media texts.

Section 2: Limitations and developing the work further

Limitations

When considering the limitations of a research study, attention tends to be given to methodological shortcomings, including for example the failure to collect specific data. In this thesis, the materials for analysis were collected prior to the explicit formulation of my research question. This has had both advantages and disadvantages. The advantages are that I had data I could not have collected as a lone PhD student. Also, the process of doing a secondary analysis has enabled me to develop insights about the data, and the process of data analysis, which emerged precisely in the time lag, and change of perspective, caused by the re-formulation of my interests with respect to the data. The disadvantages are that I am highly aware of additional data it would have been useful to collect to develop the analysis in this thesis further; for example, more detailed video data of the production process, as well as interviews with students as they made their games on what they were trying to realise, why, and justifications for design decisions. This could potentially have grounded my interpretations of students' games more firmly, or provided interesting points of contrast between talk and game-making as imbricated resources in the process of production. However, this thesis was somewhat experimental in its

theoretical and methodological approaches, and its conclusions can inform future work to address these limitations.

How the work could be developed further

There are three ways in which the work achieved in this thesis could potentially be developed further.

In terms of extending the empirical field of research, attention could be given to other aspects of subjectivity which are involved in textual production, particularly socio-economic status and ethnicity. In the Making Games project, researchers selected two contrasting schools, one which was predominantly white and middle class (Cambridge) and the other which was predominantly African- Caribbean and in a deprived part of London. I have not been able to make much of these aspects of the study, primarily because of the way data were collected (we worked with a small number of students in the London school and did not study classroom practices, unlike in Cambridge), but also because of my lack of familiarity with the literature. It would be interesting to develop an account of the performative production of subjectivity taking these issues into account.

I have highlighted above some of the methodological limitations in this study. Further work could collect data to analyse textual production at a more localised level, focusing for example on the writing of individual rules, the integration of specific images or sounds in time. This would enable a more detailed analysis of the relationship between textual production and social relations.

Theoretically, there could be exploration of the ways in which Butler's psychoanalytic concepts could be integrated into textual analysis. Butler's interpretation and re-formulation of Freud and Lacan have given rise to psychoanalytically-informed readings of empirical material, including interviews (McRobbie 2007). I have not drawn on this aspect of Butler's work in this thesis,

although the notion of performativity entails a certain view of the unconscious (briefly touched on in Chapter 3). Social semiotics has also engaged with some psychoanalytical approaches; Kress and Hodge's (1979) discussion of negation draws on the Freudian argument about the status of negation in psychoanalysis. Their argument that "negative forms must be interpreted in terms of an underlying positive form" (Kress & Hodge 1979: 144) was influenced by Freud's treatment of negation in therapy (see for example Freud's case study on Dora). In order to develop further an account of the relationship between meaning-making and subjectivity, and particularly to illuminate accounts of selection and 'aptness' in sign-making, a psychoanalytic perspective which enables a description of what has been foreclosed or banished from the proper domain of symbolisation could be integrated.

Implications of the work

The research presented in this thesis has explored some of the implications of new forms of technology, and new media genres, for education and pedagogy. The emergence of computer games as significant cultural phenomena is indicative of the new symbolic ground which is emerging in the wake of technological, cultural and economic change. In playing and making computer games, students are engaging in communicative practices which combine text, image, sound and moving image, as well as social practices which reshape relations of authority and power, and thus forms of subjectivity. Work in the field of multimodality and media studies has emphasised the need for schools to take into account these emerging genres, and the way they affect the communicational landscape. I have explored the social and semiotic processes involved in generating multimodal, interactive texts, and pointed to the kinds of evaluations and judgements which students consequently engage in. However, I have also suggested that these emerging genres are not simply imposed or reproduced in educational sites, but re-shaped according to situated historical practices. This points to the way in which students, and also schools, participate in cultural production, and do not simply reproduce generic textual models.

Educational sites are thereby framed as productive, rather than merely reflective, with new media transforming such productivity. To argue that educational sites are culturally productive is not to naively celebrate a certain vaguely defined notion of creativity, but rather to point to the diverse textual practices in and around schools, and in young people's lives more generally, which are emerging in tandem with new media and technology. This view disrupts a conception of technology as more effective and efficient in terms of delivering curriculum content, which can be detected in certain argument for using computer games in education; here I have pointed out how games made and played in and around schools are imbricated in the transformation of textual practices and social relations.

The concepts of re-signification, transformation and performativity also have implications for pedagogy, and notably for the thorny area of assessment. Johnson and Kress (2003) point to the dangers of imposing singular standards and targets in assessment, which deny cultural and linguistic differences. The concept of performativity challenges the validity of individualised, stable assessment criteria, by framing subjectivity and action as relational and contextual. In defining learning as a temporally and spatially evolving process, the question of what assessment is for is made particularly pressing. If pedagogy is understood as the instantiation of forms of social relations, it follows that teaching and learning, as well as assessment, are not narrowly scientific or technical processes, but rather ethical, political and cultural acts, which pertain to the kinds of social relations and citizens/subjects that could and should be constructed, as well as those that could and should be marginalised. This means that the 'problem' of pedagogy and assessment becomes one which is articulated in terms of the basis on which they can be judged to be credible and socially just, with respect to a politically implicated view of society and citizenship. The thesis points to the significance of new kinds of texts for a debate on pedagogy and assessment, by highlighting the forms of subjectivity and social relations which emerge in relation to new media.

As well as contributing to the broad field of technology in education, this thesis has implications for ethnographically-informed work on communication and knowledge production. In Chapter 3, I argued that the research methodology could not be termed ethnographic, since it was based on an educational intervention in which I usually played the role of teacher. However, the approach to data analysis points to the productiveness of combining social semiotics with observational methods. Observational work enabled more insightful, more rigorous analysis of students' games, whereas the organisation of the data analysis around the games meant that descriptions of social processes could be carried out with precision, by focusing on delimitable entities (the games as texts). By bringing together texts and observational data, it was possible to describe the role of textual genres in the shaping and re-shaping of social norms, as well as investigate the processes by which texts are positioned as authoritative or marginal in different cultural and institutional contexts. Street (1995: 43 & 45) emphasizes the importance of "ethnographic methods and theories" in examining "the varieties of [...] forms of communication to be found in the contemporary world", in order to avoid culturally insensitive and normative conceptions of meaning-making across contexts. This thesis has explored the significance of context, materiality (as semiotic resource) and subjectivity in the emergence of games as a textual and communicational genre. It points to the role which new media play in young people's lives and contemporary youth culture, and has put forward theoretical and methodological tools for investigating situated, multimodal communication and knowledge production in the wake of a rapidly changing communicational landscape.

BIBLIOGRAPHY

Aarseth, E. (1997) *Cybertext: perspective on ergodic literature,* John Hopkins University Press.

Abbs, P. (2003) *Against the flow: the arts, postmodern culture and education,* Routledge, London.

Adams, E. W. (2003) 'The construction of ludic space', in M. Copier and J. Raessens (Eds.) *Level Up: Digital Games Research Conference Proceedings,* Utrecht University, Utrecht.

Alcorn, M. W. (2002) *Changing the subject in English class,* Southern Illinois University press, Carbondale.

Alloway, N. and Gilbert, P. (1998) 'Video game culture: playing with masculinity, violence and pleasure', in S. Howard (ed) *Wired-up: young people and the electronic media*, UCL press, London, pp. 95-114.

Althusser, L. (1977) *Lenin and Philosophy and Other Essays,* NLB, London.

Andersen, N. A. (2003) *Discursive analytical strategies: understanding Foucault, Koselleck, Laclau, Luhmann,* The Polity Press, Cambridge.

Anderson, C. A. and Dill, K. E. (2000) 'Video games and aggressive thoughts, Feelings and Behaviour in the Laboratory and in Life', *Journal of Personality and Social Psychology*, vol 78, issue 4, pp. 772-790.

Arnseth, H. C. (2006) 'Learning to Play or Playing to Learn - A Critical Account of the Models of Communication Informing Educational Research on Computer Gameplay', *Game Studies*, vol 6, issue 1. Available at http://gamestudies.org/0601/articles/arnseth. URL last accessed 6th June 2007.

Atkins, B. (2003) *More than a game: the computer game as fictional form,* Manchester University Press, Manchester.

Atkinson, P. and Hammersley, M. (1994) 'Ethnography and Participant Observation', in N. Denzin and Y. Lincoln (Eds.) *Handbook of Qualitative Research, Sage, London,* pp. 249-261.

Austin, J. L. (1962) *How to Do Things with Words,* Harvard University Press, Cambridge MA.

Barthes, R. (1957) *Mythologies,* Editions du Seuil, Paris.

Barthes, R. (1977) *Image, music, text*, Fontana, London.

Barton, D., Hamilton, M. and Ivanic, R. (Eds.) (2000) *Situated literacies: reading and writing in context,* Routledge, London.

Beavis, C. (1998) 'Computer games, culture and curriculum', in I. Snyder (ed) *Page to Screen: taking literacy into the electronic age,* Routledge, London, pp. 234-255.

Bennett, T. (1996) 'Really 'useless' knowledge: a political critique of aesthetics', in J. Palmer and M. Dodson (Eds.) *Design and Aesthetics: a reader*, Routledge, London.

Bogost, I. (2006) *Unit operations: an approach to videogame criticism,* MIT press, Cambridge.

Bourdieu, P. (1979) *La distinction: critique social du jugement de gout*, Editions de Minuit, Paris.

Bourdieu, P. (1990) *The logic of practice,* Polity press, London.

Bourdieu, P. (1991) *Language and symbolic power,* Polity press, Cambridge.

Bourdieu, P. (2001) *Langage et pouvoir symbolique,* Editions du Seuil, Paris.

Bourdieu, P. and Wacquant, J. D. L. (1992) *An invitation to reflexive sociology,* University of Chicago Press, Chicago.

Bringsjord, S. (2001) 'Is It Possible to Build Dramatically Compelling Interactive Digital Entertainment (in the form, e.g., of computer games)?', *Game studies*, vol 1. Available at

http://www.gamestudies.org/0101/bringsjord/index.html. URL last accessed 6th June 2007.

Bruner, J. (1996) *The Culture of Education,* Harvard University Press, Cambridge MA.

Bryce, J. and Rutter, J. (2003) 'The gendering of computer gaming: experience and space', in S. Fleming and I. Jones (Eds.) *Leisure cultures: investigations in sport, media and technology,* Leisure studies association, pp. 3-22.

Buckingham, D. (1993) *Children talking television: the making of television literacy,* The Falmer Press, London.

Buckingham, D. (1996) *Moving images: understanding children's emotional responses to television,* Manchester University Press, Manchester.

Buckingham, D. (2002) 'The electronic generation? Children and new media', in L. A. Lievrouw and S. Livingstone (Eds.) *Handbook of New Media,* Sage, London, pp. 77-89.

Buckingham, D. (2003) *Media Education: literacy, learning and contemporary culture,* Polity Press, Cambridge.

Buckingham, D. (2004) *Defining game literacy*, unpublished notes for the Education Arcade conference, May.

Buckingham, D. (in press) 'Playing to learn? Rethinking the Educational Potential of Computer Games', Chapter 6 in *Beyond Technology: Children's Learning in the Age of Digital Culture*, to be published in 2007 by Polity Press, Cambridge.

Buckingham, D. and Sefton-Green, J. (1994) *Cultural Studies Goes to School,* Taylor and Francis, London.

Buckingham, D., Grahame, J. and Sefton-Green, J. (1995) *Making Media: practical production in media education,* The English and Media Centre, London.

Burn, A. (2004) 'From The Tempest to Tomb-Raider: computer games in english, media and drama ', in *English, Drama, Media. The magazine of the National Association for the Teaching of English*, June, pp. 19-25.

Burn, A. and Durran, J. (2006) 'Digital anatomies: analysis as production in media education', in D. Buckingham and R. Willett (Eds.) *Digital Generations: children, young people and new media*, Lawrence Erlbaum, London, pp. 273-294.

Burn, A. and Parker, D. (2003) *Analysing media texts,* Continuum, London.

Burn, A. and Schott, G. (2004) 'Heavy Hero or Digital Dummy? Multimodal Player-Avatar relations in Final Fantasy 7', *Visual Communication,* vol 3, issue 2, pp. 213-233.

Burn, A., Brindley, S., Reid, M. et al (2001) 'The rush of images: a research report on a study of digital editing and the moving image', *English in Education,* vol 35, issue 2, pp. 34-47.

Butler, J. (1993) *Bodies That Matter: on the discursive limits of sex,* Routledge, London.

Butler, J. (1997) *Excitable Speech: a politics of the performative,* Routledge, London.

Butler, J. (1999a) *Gender trouble: feminism and the subversion of identity. 2nd Edition,* Routledge, London.

Butler, J. (1999b) 'Performativity's social magic', in R. Shusterman *(ed) Bourdieu: a critical reader*, Blackwell, Oxford, pp. 113-128.

Butler, J. (2000) *Antigone's Claim: kinship between life and death,* Columbia University Press, New York.

Butler, J. (2004) *Undoing gender,* Routledge, London.

Butler, J., Laclau, E. and Zizek, S. (2000) *Contingency, hegemony, universality,* Verso, London.

Caillois, R. (1967) *Les jeux et les hommes,* Gallimard, Paris.

Callaghan, G (2005) 'Accessing habitus: relating structure and agency through focus group research', *Sociological research online*, vol 10, issue 3. Available at: http://www.socresonline.org.uk/10/3/callaghan.html. URL last accessed 6th June 2007.

Callinicos, A. (1989) *Against postmodernism: a Marxist critique*, Polity Press, Cambridge.

Carr, D. (2003) 'Genre and affect in *Silent Hill* and *Planescape Torment* ', *Game studies*, vol 3. Available at http://www.gamestudies.org/0301/carr/. URL last accessed 6th June 2007.

Carr, D. (2005) 'Contexts, gaming pleasures and gendered preferences', *Simulation and Gaming*, vol 36, issue 4, pp. 464-482.

Carr, D., Buckingham, D., Burn, A. and Schott, G. (2006) *Computer games: text, narrative and play,* Polity Press, Cambridge.

Cassell, J. and Jenkins, H. (Eds.) (2000a) *From Barbie to Mortal Kombat: gender and computer games,* MIT press, Cambridge MA.

Cassell, J. and Jenkins, H. (2000b) 'Chess for girls? feminism and computer games', in J. Cassell and H. Jenkins (Eds.) *From Barbie to Mortal Kombat: gender and computer games,* MIT press, Cambridge MA, pp. 2-45.

Catterall, M. and Maclaren, P. (1997) 'Focus group data and qualitative analysis programs: coding the moving picture as well as the snapshots', *Sociological research online*, vol 10, issue 3. Available at: http://www.socresonline.org.uk/2/1/6.html. URL last accessed 6th June 2007.

Chatman, S. (1978) *Story and discourse: narrative structure in fiction and film*, Cornell University Press, New York.

Cole, M. (1996) *Cultural Psychology: the once and future discipline,* Harvard University Press, Cambridge MA.

Consalvo, M. (in press) 'Crunched by passion: Women game developers and workplace challenges', in Y. B. Kafai, C. Heeter, J. Denner, and J. Sun (Eds.) *Beyond Barbie and Mortal Kombat: New perspectives on games, gender and computing*, MIT press, Cambridge MA.

Cope, B. and Kalantzis, M. (Eds.) (2000) *Multiliteracies: literacy learning and the design of social futures,* Routledge, London.

Corti, L and Thompson, P. (1998) 'Are you sitting on your qualitative data? Qualidata's mission', *International Journal of Social Research Methodology*, vol 1, issue 1, pp. 85-89.

Corti, L. (2000) 'Progress and problems of preserving and providing access to qualitative data for social research – the international picture of an emerging culture', *Forum: qualitative social research,* vol 1, issue 3. Available at http://www.qualitative-research.net/fqs-texte/3-00/3-00corti-e.htm. URL last accessed 7th June 2007.

Corti, L. and Bishop, L. (2005) 'Strategies in Teaching Secondary Analysis of Qualitative Data', *Forum: qualitative social research,* vol 6, issue 1. Available at http://www.qualitative-research.net/fqs-texte/1-05/05-1-47-e.htm. URL last accessed 7th June 2007.

Corti, L. and Thompson, P. (2004) 'Secondary analysis of archive data', in C. Seale, G. Gobo, J. F. Gubrium, and D. (Eds.), *Qualitative research practice*, Sage, London, pp. 327-343.

Cuban, L. (1986) *Teachers and Machines: the classroom use of technology since 1920,* Teachers College Press, New York.

Cuban, L. (2001) *Oversold and underused: computers in the classroom,* Harvard University Press, Cambridge MA.

Cunningham, H. (1995) 'Moral kombat and computer game girls', in C. Bazalgette and D. Buckingham (Eds.) *In front of the children: screen entertainment and young audiences*, BFI Publishing, London, pp. 188-200.

Dale, A., Arber, S. and Procter, M. (1988) *Doing secondary analysis*, Unwin Hyman. London.

Dawes, L. and Dumbleton, T. (2001) Computer games in education project. http://www.becta.org.uk/page_documents/research/cge/report.pdf; URL last accessed 15th July, 2004.

De Certeau, M. (1984) *The Practice of Everyday Life,* University of California Press, London.

De Freitas (2007) *Learning in Immersive Worlds: a review of game-based learning*. A report prepared for the JISC e-learning programme. Available at http://www.jisc.ac.uk/media/documents/programmes/elearning_innovation/gaming%20report_v3.3.pdf. URL last accessed 6th June 2007.

De Freitas, S., Savill-Smith, C. and Attewell, J. (2006) *Computer Games and Simulations for adult learning: case studies from practice*, Learning and Skills Development Agency, London.

Deacon, D., Pickering, M., Golding, P. and Murdock, G. (1999) *Researching communications: a practical guide to methods in media and cultural analysis*, Arnold, London.

Denner, J. and Campe, S. (in press) 'What games made by girls can tell us', in Y. B. Kafai, C. Heeter, J. Denner, and J. Sun (Eds.) *Beyond Barbie and Mortal Kombat: New perspectives on games, gender and computing*, MIT press, Cambridge MA.

Derry, J. (2004) 'The Unity of Intellect and Will: Vygotsky and Spinoza', *Educational Review,* vol 56, issue 2, pp. 113-120.

Deutscher, P. (2005) *How to read Derrida,* Granta, London.

DfES - Department for Education and Skills (2003) *Towards a Unified e-Learning Strategy – Consultation Document*. Available at www.dfes.gov.uk/consultations. URL last accessed 6th June 2007.

DfES – Department for Education and Skills (2005) *Computer and video games in curriculum-based education*, DfES, London.

Dowling, P. (2005) *A Timely Utterance*, Invited contribution to the European Systemic Functional Linguistics Conference and Workshop, August. Available at http://homepage.mac.com/paulcdowling/ioe/publications/dowling2005/timely_utterance/index.htm. URL last accessed 6th June 2007.

Druin, A. (1999) *Cooperative inquiry: developing new technologies for children with children*, Paper presented at CHI'99, May. Available at http://hcil.cs.umd.edu/trs/99-14/99-14.pdf. URL last accessed 7th June 2007.

Dyson, A. H. (1997) *Writing superheroes: contemporary childhood, popular culture, and classroom literacy,* Teachers College Press, London.

Egenfeldt-Nielsen, S. (2005) *Beyond Edutainment: Exploring the Educational Potential of Computer Games*, unpublished PhD thesis, IT-University Copenhagen.

Ellsworth, E. (1989) 'Why doesn't this feel empowering? Working through the repressive myths of critical pedagogy', *Harvard Educational Review*, vol 59, issue 3, pp. 297-324.

ELSPA - Entertainment and Leisure Software Publishers Association (2006) *Unlimited Learning: computer and video games in the learning landscape*. Available at http://www.elspa.com/assets/files/u/unlimitedlearningtheroleofcomputerandvideogamesint_344.pdf. URL last accessed 6th June 2007.

Emmeche, C. (1999) 'The Biosemiotics of Emergent Properties in a Pluralist Ontology', in E. Taborsky (ed.) *Semiosis, Evolution, Energy: Towards a Reconceptualisation of the Sign,* Shaker Verlag, Aachen, pp. 89-108.

Engeström, Y. (2001) 'Expansive learning at work: towards an activity theoretical reconceptualization', *Journal of Education and Work*, vol 14, issue 1, pp. 133-156.

Eskelinen, M. (2001) 'The gaming situation', *Game studies,* vol 1. Available at http://www.gamestudies.org/0101/eskelinen/. URL last accessed 6th June 2007.

Fairclough, N. (1992) *Discourse and social change,* Polity Press, Cambridge.

Fink, A. S. (2000) 'The role of the researcher in the qualitative research process: a potential barrier to archiving qualitative data', *Forum: qualitative social research,* vol 1, issue 3. Available at http://www.qualitative-research.net/fqs-texte/3-00/3-00fink-e.pdf. URL last accessed 7th June 2007.

Foucault, M. (1966) *Les mots et les choses: une archeologie des sciences humaines,* Gallimard, Paris.

Foucault, M. (1968) 'Sur l'archeologie des sciences. Reponse au cercle d'epistemologie', in *Dits et Ecrits*, vol 1, Gallimard, Paris, pp. 724-759.

Foucault, M. (1969) *L'ordre du discours,* Gallimard, Paris.

Foucault, M. (1972) *The archeology of knowledge,* Tavistock Publications, London.

Foucault, M. (1977) *Discipline and Punish: the birth of the prison*, Allen Lane, London.

Fromme, J. (2003) 'Computer games as a part of children's culture', *Game studies,* vol 3, issue 1. Available at http://www.gamestudies.org/0301/fromme/. URL last accessed 7th June 2007.

Gailey, C. W. (1996) 'Mediated messages: gender, class, and cosmos in home video games', in P. M. Greenfield and R. R. Cocking (Eds.) *Interacting with video*, Ablex, Norwood NJ, pp. 9-23.

Gaskell, G. (2000) 'Individual and group interviewing', in M. W. Bauer and G. Gaskell (Eds.) *Qualitative researching with text, image and sound: a practical handbook,* Sage, London, pp. 38-56.

Gee, J. (2003) *What Videogames have to teach us about Learning and Literacy*, Palgrave Macmillan , New York.

Gee, J. (2004) *Situated Language and Learning: A Critique of Traditional Schooling*, Routledge, London.

Gee, J. (2005) 'Semiotic Social Spaces and Affinity Spaces: From The Age of Mythology to Today's Schools', in D. Barton and K. Tusting (eds.) *Beyond Communities of Practice: Language, Power and Social Context,* Cambridge University Press, New York, pp. 214-233.

Gill, R. (2000) 'Discourse analysis', in M. W. Bauer and G. Gaskell (Eds.) *Qualitative researching with text, image and sound: a practical handbook,* Sage, London, pp. 172-190.

Gore, J. (1992) 'What we can do for you! What can "we" do for "you"?: Struggling over Empowerment in Critical and Feminist Pedagogy', in C. Luke and J. Gore (Eds.) *Feminisms and Critical Pedagogy*, Routledge, London, pp. 54-73

Gore, J. (1993) *The Struggle for Pedagogies: Critical and Feminist Discourses as Regimes of Truth*, Routledge, London.

Gorriz, C. M. and Medina, C. (2000) 'Engaging girls with computers through software games', *Communications of the ACM*, vol 34, issue 1, pp. 42-49.

Graner-Ray, S. (2002) 'But what if the player is female?', in F. D. Laramee (ed) *Game design perspectives,* Charles River Media, Hingham, MA, pp. 304-309.

Graner-Ray, S. (2003) *Gender inclusive game design,* Charles River Media, Hingham, MA.

Gray, J. (2003) 'New Audiences, New Textualities: Anti-Fans and Non-Fans', *International Journal of Cultural Studies*, vol. 6, issue 1, pp. 64-81.

Gregson, K. (2005) 'What if the lead character looks like me? Girl fans of shoujo anime and their Web sites', in S. A. Mazzarella (ed.) *Girl Wide Web: Girls, the Internet, and the Negotiation of Identity.* Available at http://www.ithaca.edu/faculty/kgregson/anime_open_coding_example.html. URL last accessed 6th October 2006.

Hakim, C. (1982) *Secondary analysis in social research: a guide to data sources and methods with examples*, George Allen Unwin, London.

Hall, K. (1998) 'Critical literacy and the case for it in the early years of school', *Language, Culture and Curriculum*, vol 11, issue 2, pp. 183-194.

Halliday, M. A. K. (1978) *Language as social semiotic: the social interpretation of language and meaning,* Edward Arnold, London.

Halliday, M. A. K. (1994) *An introduction to functional grammar,* Arnold, London.

Halliday, M. A. K. and Martin, J. R. (1993) *Writing science: literacy and discursive power.*

Hammersley, M. (1997) 'Qualitative data archiving: some reflections on its prospects and problems', *Sociology*, vol 31, issues 1, pp. 131-42.

Heaton, J. (1998) 'Secondary analysis of qualitative data', *Social Research Update*, 22. Available at http://sru.soc.surrey.ac.uk/SRU22.html. URL last accessed 7th June 2007.

Heaton, J. (2000) *Secondary analysis of qualitative data: a review of the literature*, Social Policy Research Unit, University of York. Available at http://www.york.ac.uk/inst/spru/research/summs/secondary.htm. URL last accessed 7th June 2007.

Heaton, J. (2004) *Reworking qualitative data*, Sage, London.

Hills, M (2002) *Fan cultures*, Routledge, London.

Hinds, P. S., Vogel, R. J. and Clarke-Steffen, L. (1997) 'The possibilities and pitfalls of doing a secondary analysis of a qualitative data set', *Qualitative Health Research,* vol 7, issue 3, pp. 408-424.

Hodge, R. and Kress, G. (1988) *Social semiotics,* Polity Press, Cambridge.

Howarth, D. (2000) *Discourse,* Open University Press, Buckingham.

Hyland, K. (2002) 'Genre: language, context, and literacy', *Annual Review of Applied Linguistics,* vol 22, pp. 113-135.

Hyman, H. H. (1972) *Secondary analysis of sample surveys: principles, procedures and potentialities,* John Wiley, New York.

Janis, I. L. (1982) *Groupthink: psychological studies of policy decisions and fiascoes* (2nd ed), Houghton Mifflin, Boston.

Jenkins, H. (1992) *Textual poachers: television fans and participatory culture,* Routledge, New York.

Jenkins, H. (2003) 'From Barbie to Mortal Kombat: further reflections', in A Everett, A. and J. T. Caldwell (Eds.) *New media: theories and practices of digitextuality,* Routledge, New York, pp. 243-253.

Jewitt, C. (2002) 'The move from page to screen: the multimodal reshaping of school English', *Visual Communication,* vol 1, issue 2, pp. 171-195.

Jewitt, C. (2003a) 'Computer-mediated learning: the multimodal construction of mathematical entities on screen', in C. Jewitt and G Kress (Eds.) *Multimodal literacy,* Peter Lang, New York, pp. 34-55.

Jewitt, C. (2003b) *A multimodal framework for computer mediated learning: the re-shaping of curriculum knowledge and learning*, unpublished PhD thesis, Institute of Education, University of London.

Jewitt, C. (2006) *Technology, literacy and learning: a multimodal approach,* Routledge, London.

Jewitt, C. and Kress, G. (Eds.) (2003) *Multimodal literacy,* Peter Lang, New York.

Johnson, D. and Kress, G. (2003) 'Globalisation, literacy and society: redesigning pedagogy and assessment', *Assessment in education*, vol 10, issue 1, pp. 5-14.

Juul, J. (2001) 'Games telling stories? a brief note on games and narratives', *Game Studies*, vol 1. Available at http://www.gamestudies.org/0101/juul-gts/. URL last accessed 6th June 2007.

Juul, J. (2002) 'The Open and the Closed: Game of emergence and games of progression ', in F. Mäyrä (ed) *Computer Game and Digital Cultures Conference Proceedings,* Tampere University Press, Tampere, pp. 323-329.

Kafai Y. B., Heeter, C., Denner, J. and Sun, J. (Eds.) (in press) *Beyond Barbie and Mortal Kombat: New perspectives on games, gender and computing,* MIT press, Cambridge MA.

Kafai, Y. B. (1996) 'Gender differences in children's constructions of video games', in P. M. Greenfield and R. R. Cocking (Eds.) *Interacting with video,* Ablex, Norwood NJ, pp. 39-66.

Kafai, Y. B. (1999) 'Children as designers, testers and evaluators of educational software ', in A. Druin (ed) *The design of children's technology,* Morgan Kaufmann, San Francisco CA, pp. 124-145.

Kafai, Y. B. (2000) 'Video game designs by girls and boys: variability and consistency of gender differences ', in J. Cassell and H. Jenkins, *From Barbie to Mortal Kombat: gender and computer games,* MIT press, Cambridge, pp. 90-114.

Kafai, Y. B. (2006) 'Playing and making games for learning: instructionist and constructionist perspectives for game studies', *Games and Culture,* vol 1, issue 1, pp. 36-40.

Kiecolt, K. J. and Nathan, L. E. (1982) *Secondary analysis of survey data*, Sage, London.

King, G. and Krzywinska, T. (2002) *Screenplay: cinema/videogames/interfaces,* Wallflower Press, London.

Kirrimuir, J. and McFarlane, A. (2004) *Literature review in Games and Learning*, Nesta Futurelab, Bristol.

Kirschner, D. and Whitson, J. A. (Eds.) (1997) *Situated Cognition: Social, Semiotic, and Psychological Perspectives,* Lawrence Erlbaum, London.

Kozulin, A. (1996) 'The concept of activity in Soviet psychology', in H. Daniels (ed) *An introduction to Vygotsky,* Routledge, London, pp. 99-122.

Kress, G. (1997) *Before writing: re-thinking the paths to literacy,* Routledge, London.

Kress, G. (1998) 'Visual and verbal modes of representation in electronically mediated communication: the potentials of new forms of text', in I. Snyder (ed) *Page to Screen: taking literacy into the electronic era,* Routledge, London, pp. 53-79.

Kress, G. (2000) 'Design and Transformation: new theories of meaning ', in B. Cope and M. Kalantzis (Eds.) *Multiliteracies: literacy learning and the design of social futures*, Routledge, London, pp. 153-161.

Kress, G. (2003a) *Literacy in the New Media Age,* Routledge, London.

Kress, G. (2003b) 'Genres and the multimodal production of 'scientificness'', in C. Jewitt and G. Kress (Eds.) *Multimodal Literacy*, Peter Lang Publishing, New York, pp. 173-186.

Kress, G. (2005a) *Towards a semiotic theory of learning*, unpublished manuscript.

Kress, G. (2005b) *English for an Era of Instability: aesthetics, ethics, creativity and 'design'*, available at www.aate.org.au/E_in_A/EinA134/Kress134.html. URL last accessed 23rd May 2005

Kress, G. (2005c) *Thinking about meaning and learning in a world of instability and multiplicity*, unpublished manuscript.

Kress, G. and Hodge, R. (1979) *Language as Ideology,* Routledge & Kegan Paul Ltd, London.

Kress, G. and Mavers, D. (2005) 'Social semiotics and multimodal texts', in B. Somekh and C. Lewin (Eds.) *Research methods in the social sciences,* Sage, London, pp. 172-179.

Kress, G. and Van Leeuwen, T. (1996) *Reading images: the grammar of visual design,* Routledge, London.

Kress, G. and Van Leeuwen, T. (2001) *Multimodal discourse: the modes and media of contemporary communication,* Hodder Headline, London.

Kristeva, J. (1996) *Powers of Horror: An Essay on Abjection*, Columbia University Press, New York.

Latour, B. (1991) 'Technology is society made durable', in J. Law (ed) *A Sociology of Monsters: essays on power, technology and domination,* Routledge, London, pp. 103-131.

Laurel, B. (1998) *Keynote address: new players, new games,* Paper presented at GDC 99, San Jose, March.

Laurel, B. (1998*) Keynote address: technological humanism and values driven design,* Paper presented at CHI98, Los Angeles, April.

Lave, J and Wenger, E (1991) *Situated Learning: Legitimate Peripheral Participation*, Cambridge University Press, Cambridge.

Lave, J. and Wenger, E. (1996) 'Practice, person, social world ', in H. Daniels (ed) *An introduction to Vygotsky,* Routledge, London, pp. 143-150.

Law, J. (2004) *After method: mess in social science research,* Routledge, London.

Lecercle, J.-J. (2002) *Deleuze and Language,* Palgrave Macmillan, London.

Lemke, J. L. (2002) 'Travels in hypermodality', *Visual Communication,* vol 1, issue 3, pp. 299-325.

Lillis, T (2003) 'Student writing as 'academic literacies': drawing on Bakhtin to move from *Critique* to *Design'*, *Language and Education*, vol 17, issue 3, pp. 192 -207.

Linderoth, J. (2002) *Making sense of computer games: learning with new artifacts*, Paper presented at the International Conference on Games, Toys and Media, Institute of Education, London, July.

Linderoth, J. (2006) *From Games to Gaming*, presentation at LearnIT conference, Goteborg, March 15th.

Losonsky, M. (2006) *Linguistic Turns in Modern Philosophy,* Cambridge University Press, Cambridge.

Loyal, S. and Barnes, B. (2000) '"Agency" as a red herring in social theory', *Philosophy of Social Sciences*, vol 31, issue 4, pp. 507-24.

Marx, K. (2000) *Selected writings*, D. McLellan (ed), second edition, Oxford University Press, Oxford.

McFarlane, A., Sparrowhawk, A. and Heald, Y. (2002) *Report on the educational use of games: An exploration by TEEM on the contribution which games can make to the educational process,* Cambridge, TEEM. Available at http://www.teem.org.uk/publications/teem_gamesined_full.pdf. URL last accessed 6th June 2007.

McLaren, P. L. (1988) 'Culture or canon? Critical pedagogy and the politics of literacy', *Harvard Educational Review*, vol 58, issue 2, pp. 213-234.

McNay, L. (2000) *Gender and Agency: reconfiguring the subject in feminist and social theory,* Polity Press, Cambridge.

McRobbie, A. (2007) *Illegible Rage: reflections on young women's post feminist disorders*, Paper presented at ESRC New Femininities Series, LSE, January. Available at http://www.lse.ac.uk/collections/LSEPublicLecturesAndEvents/events/2007/20061204t1746z001.htm. URL last accessed 6th June 2007.

Miles, M. B. and Huberman, A. M. (1994) *Qualitative data analysis: an expanded sourcebook,* Sage, London.

Minick, N. (1996) 'The development of Vygotsky's thought: an introduction to *Thinking and Speech'*, in H. Daniels (ed) *An introduction to Vygotsky,* Routledge, London, pp. 28-52.

Mitchell, A. and Savill-Smith, C. (2004) *The use of computer and video games for learning: a review of the literature*, Learning and Skills Development Agency, London.

Moss, G. (1989) *Un/popular fictions,* Virago, London.

Murray, J. (1998) *Hamlet on the holodeck: the future of narrative in cyberspace*, MIT Press, Cambridge MA.

New London Group (1996) 'A pedagogy of multiliteracies: designing social futures', *Harvard Educational Review*, vol 66, pp. 60-92.

Newman, J. (2004) *Videgames*, Routledge, London.

Oliver, M. (2005) 'The problem with affordances', *E-learning*, vol 2, issue 4. Available at http://www.wwwords.co.uk/rss/abstract.asp?j=elea&aid=2706. URL last accessed 6th June 2007.

Orr Vered, K. (1998) 'Blue Group Boys play *Incredible Machine*, Girls play Hopscotch: social discourse and gendered play at the computer', in J. Sefton-Green (ed) *Digital Diversions: youth in the age of multimedia,* UCL Press, London.

Papert, S. (1993) *Mindstorms : children, computers and powerful ideas,* Harvester Wheatsheaf, New York.

Pelletier, C (2005a) 'New Technologies, New Identities: the university in the informational age', in R. Land and S. Bayne (Eds.) *Education in cyberspace,* London, RoutledgeFalmer, pp. 11-25

Pelletier, C (2005b) 'The uses of literacy in studying computer games: comparing students' oral and visual representations of games', *English Teaching: Practice and Critique*, vol 4, issue 1, pp. 40-59

Pelletier, C. (2005c) 'Studying Games in School: learning and teaching about game design, play and culture', *Digra Online Proceedings*. Available at http://www.digra.org/dl/db/06278.32248.pdf. URL last accessed 6th June 2007.

Pelletier, C. (2006) 'Re-configuring interactivity, agency and pleasure in the education and computer games debate - using Zizek's concept of interpassivity to analyse educational play', *E-learning*, vol 2, issue 4, pp. 317-326.

Prensky, M. (2006) *Don't Bother Me Mom--I'm Learning!,* Paragon House Publishers, New York.

Provenzo, E. F. (1991) *Video kids: making sense of Nintendo*, Harvard University Press, Cambridge MA.

Raessens, J. and Goldstein, J. (2005) *Handbook of Computer Game Studies,* MIT Press, Cambridge, MA.

Robson, C. (2002) *Real world research: a resource for social scientists and practitioner-researchers*, Blackwell, Oxford.

Rollings, A. and Adams, E. (2003) *Andrew Rollings and Ernest Adams on Game Design,* New Riders, Indiana.

Ryan, M. L (2001) 'Beyond Myth and Metaphor: The Case of Narrative in Digital Media', *Game studies*, vol 1. Available at http://www.gamestudies.org/0101/ryan/. URL last accessed 6th June 2007.

Saussure, F. d. (1974) *Course in general linguistics,* Fontana, London.

Schott, G. (2003) '*Sense of Agency' Within Console Game-Play*, Paper presented at *Textuality and Computer Games* Seminar, Institute of Education, University of London, June.

Sefton-Green, J. (2004) *Literature Review in Informal Learning with Technology Outside School*, Futurelab. Available at http://www.futurelab.org.uk/research/reviews/07_01.htm. URL last accessed 6th June 2007.

Squire, K. (2002) 'Cultural framing of computer/video games', *GameStudies*, vol 2, issue 1. Available at http://www.gamestudies.org/0102/squire/. URL last accessed 20th July, 2004.

Stables, A. (2006a) 'Semiosis and the Myth of Learning', in *International Network of Philosophers of Education 10th Biennial Conference,* Allied Newspapers, Malta. Available at http://www.educ.um.edu.mt/INPE/proceedings.html. URL last accessed 6th June 2007.

Stables, A. (2006b) ''Living and Learning as Semiotic Engagement', author's notes given out at a presentation at the Institute of Education, December

Stables, A. (2006c) 'Sign(al)s: living and learning as semiotic engagement', *Journal of Curriculum Studies,* vol 38, issue 3, pp. 373-387.

Stables, A. and Gough, S. (2006) 'Towards a semiotic theory of choice and of learning', *Educational Theory,* vol 56, issue 3, pp. 271-285.

Street, B. (1995) *Social literacies: critical approaches to literacy in development, ethnography and education*, Longman, Harlow.

Sutton-Smith, B. (1997) *The ambiguity of play,* Harvard University Press, Cambridge MA.

Szabo, V. and Strang, V. R. (1997) 'Secondary analysis of qualitative data', *Advances in Nursing Science*, vol 20, issue 2, pp. 66-74.

Thomas, A. and Walkerdine, V. (2000) 'The girl as a cyberchild ', *Proceedings of the Association of Internet Researchers' Conference*, Kansas, US.

Thorne, S. (1998) 'Ethical and representational issues in qualitative secondary analysis'. *Qualitative Health Research,* vol 8, issue 4, pp. 547-55.

Tudor, A. (1999) *Decoding culture: theory and method in cultural studies,* Sage, London.

Tulloch, J. and Alvarado, M. (1983) *Doctor Who: The Unfolding Text*, Macmillan, London.

Van Leeuwen, T. (2005) *Introducing social semiotics,* Routledge, London.

Verhaeghe, P. (1999) *Does the Woman exist? From Freud's Hysteric to Lacan's Feminine,* Other Press, New York.

Volosinov, V. N. (1973) *Marxism and the philosophy of language,* Harvard University Press, Cambridge MA.

Walsh, D., Gentile, D, Gieske, J., Walsh, M., and Chasko, E. (2004) *Ninth Annual Media Wise Video Games Report Card*, Minneapolis, MN, National Institute on Media and the Family

Whiteman, N. (2007*) The establishment, maintenance and destabilisation of fandom: a study of two online communities and an exploration of issues pertaining to internet research*, unpublished PhD thesis, Institute of Education, University of London.

Willett, R. (2005) *New Models for New Media: Young people learning digital culture*, Available at http://wac.co.uk/sharedspaces/research.php. URL last accessed 14th April 2005.

Wittgenstein, L. (1967) *Philosophical Investigations,* 3rd edition, Blackwell, Oxford.

Zizek, S. (1989) *The sublime object of ideology*, Verso, London.

Zizek, S. (1997) *The plague of fantasies*, Verso, London.

Zizek, S. (1999) *The Ticklish Subject: the absent centre of political ontology*, Verso, London.